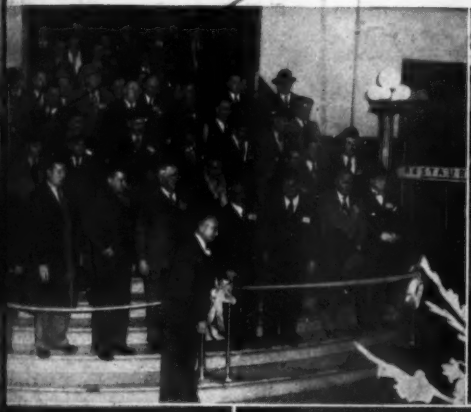
The Refrigeration Service Engineer

VOL. 16 NO. 3

DETROIT MARCH 1948



THE REFRIGERATION SERVICE ENGINEER. Nickerson & Collins Co., Publishers, 435 Waller Ave., Chicago 44, Ill. Published monthly. Vol. 16, No. 3, March 1948. Entered as second class matter March 4, 1938, Chicago Ill., under the act of March 3, 1879. Copyright 1948. Subscription in the U. S., $3.00 per year; other countries, $4.00 per year.

CHECK YOUR NEEDS

. . . . . The **IMPERIAL LINE** offers you advanced products that speed your work and improve installations . . . .

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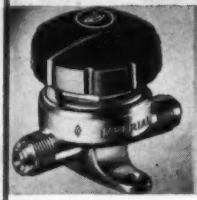
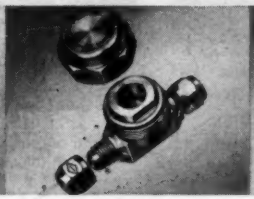


DIASEAL VALVES—The only refrigeration valve that has all these features: No Springs, "Either-Way" Flow, only two moving parts, easy finger-tip action, "million-cycle" diaphragm, inlet and outlet ports in line.

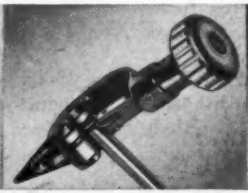
TORPEDO DRIERS—The most formidable weapon in the war on moisture. Has one piece copper shell; joints are brazed; charged with dust-free Silica Gel; new metallic depth filtration element, graduated with size of drier; easy to refill.



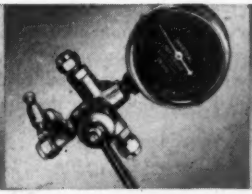
LIQUID INDICATORS — Both single and double-port types. Heavy glass in port hole, sealed against leakage with Neoprene gasket. The seal cap is an added precaution against leaks. Furnished with cap nuts.

FLOATS — Hi-Side Floats provide positive control of flow of refrigerant into evaporator. Steel construction, copper hydrogen brazed throughout. Internal parts are brass or bronze. Also Low-Side Float.

TUBE FITTINGS—TRIPLE-SEAL Flared Fittings give extra protection against leakage due to special groove in seat. Extra length pipe threads are for further protection. Nuts, tees, and elbows are made from brass forgings.



TUBING TOOLS—Speed your tubing connection work with Imperial Tube Working Tools. These outstanding tools make it easy to do faster and better cutting, flaring, bending, swedging, soldering, pinch-off, reaming, refacing.



CHARGING & TESTING—A broad line of equipment including charging lines; service valve kit for hermetic units; Hi-Lo charging and testing units—also a double gauge unit; pressure, compound and compound retard gauges.

SOLDERING & WELDING—A wide range of Imperial units for all types of soldering, brazing and welding including complete outfits, individual torches, regulators, hose and hose connections. All equipment is of the high Imperial quality.

Ask for your copy of new Catalog No. 80 covering the complete IMPERIAL LINE.

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536 S. Racine Ave., Chicago 7, Illinois

Fittings • Valves • Driers • Filters • Floats • Charging Lines • Tools for Cutting, Flaring, Bending, Pinch-Off and Swedging

ALCO THERMO-LIMIT
THE *all-purpose* VALVE

It's the only control with all these advantages "in one package":

- **LIQUID CHARGED—INSTALL IN ANY POSITION, ANY TEMPERATURE**
- **SEPARATE SUPERHEAT CONTROL**
- **SEPARATE PRESSURE LIMITING**

and when necessary:
Quick Capacity Change • Easy-to-change Pressure Limit

Set it and forget it!

Why carry several valves when there is a THERMO-LIMIT valve for ANY job? The Thermo-Limit will save you trouble, time and money.

ALCO VALVE CO.

857 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

YOU SHOULD KNOW ABOUT THE NEW *Cross-Flo*" DRIERS THAT POSITIVELY WILL NOT CLOG!

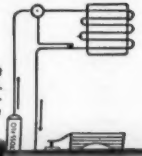
says Mr. Ken Newcum, president of REMCO, Inc.

"And No . . . I'm not sticking my neck 'way out when I say 'will not clog.' I know from the compliments and endorsements we've had from thousands of refrigeration men and service engineers that CROSS-FLO drier-filters will do all we claim for them. These same thousands have installed CROSS-FLO's on their large commercial jobs and, as a result, have changed their entire viewpoint on driers—they now agree that our exclusive new principle of flowing the refrigerant slowly ACROSS the thin cylindrical bed of drying agent, instead of forcing it through a long powder-clogged bed, has prompted an almost revolutionary new conception of drier operation.

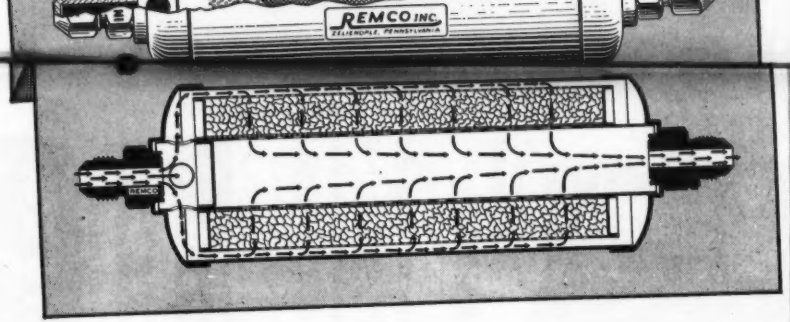
WHERE DO YOU INSTALL YOUR DRIER-FILTERS?

In the Liquid Line?

At this location the refrigerant is hottest and the drying agent least efficient. CROSS-FLO permits this installation because it positively eliminates pressure drop and clogging.



Between Refrigerant Con-



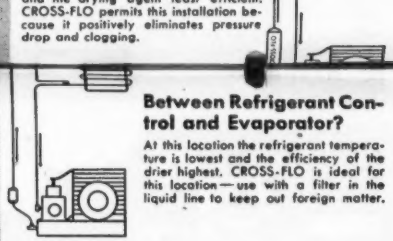
Look at the above diagram . . . follow those arrows . . . see the slow flow of the refrigerant ACROSS the thin cylindrical bed of drying agent and through the extra large, highly-efficient fine filter. You'll see the answer, in a nutshell, to "CROSS-FLO'S" efficiency.

You owe it to yourself and to your future business to examine and try the new heavy-duty "CROSS-FLO." See it at your wholesaler's now.

REMCO
INCORPORATED
ZELIENOPLE, PENNSYLVANIA

DRIERS • DRIER-FILTERS • FILTERS • HEAT-EXCHANGERS

CROSS-FLO permits this installation because it positively eliminates pressure drop and clogging.

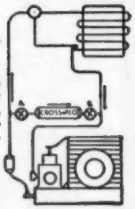


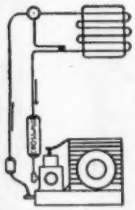
Between Refrigerant Control and Evaporator?

At this location the refrigerant temperature is lowest and the efficiency of the drier highest. CROSS-FLO is ideal for this location—use with a filter in the liquid line to keep out foreign matter.

In By-Pass Between Liquid and Suction Line?

Open valve B all the way. Open valve A slightly and regulate it to keep frost line between drier and compressor. CROSS-FLO takes full advantage of low-temp refrigerant—becomes very efficient in this installation.



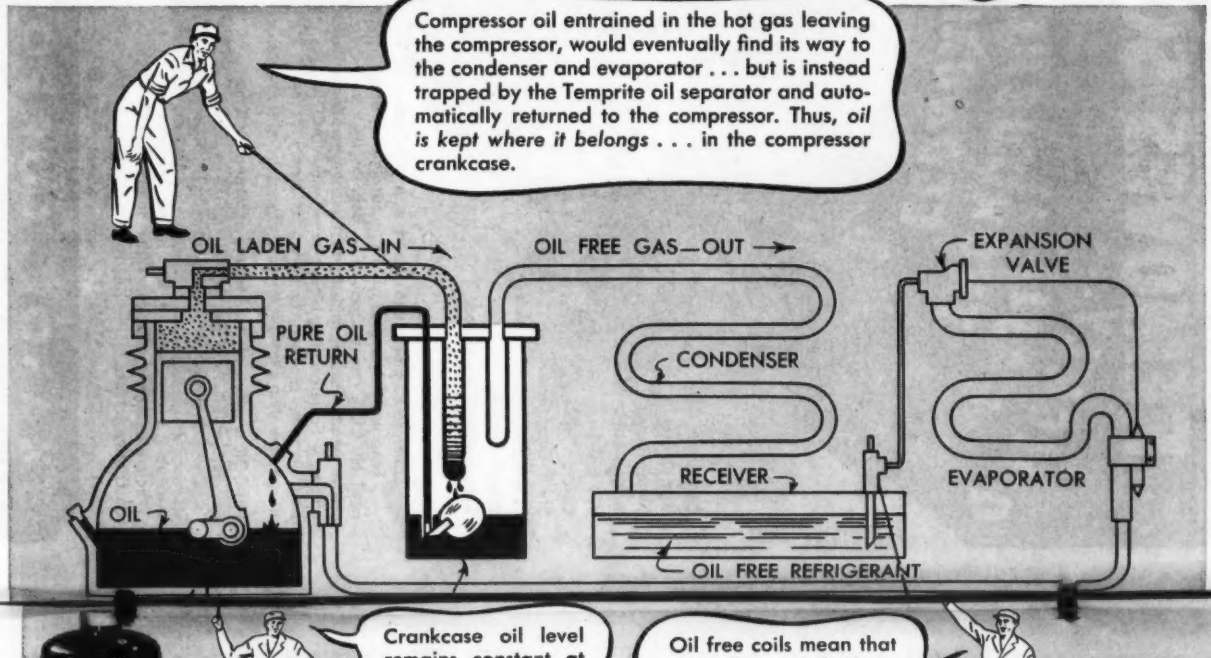


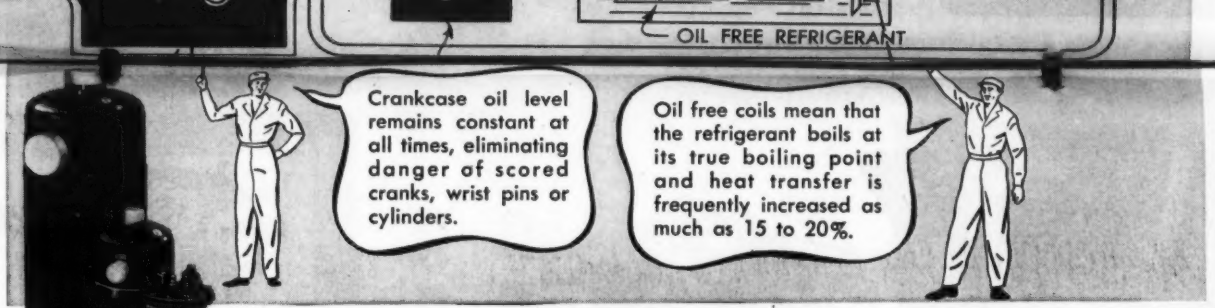
In the Suction Line?

Because of the exclusive CROSS-FLO design, REMCO Heavy-Duty may be installed in the suction line on all sizes, up to and including the size of connections on the drier, without pressure drop. And . . . CROSS-FLO may be left in the suction *permanently*.

For answer to these and other everyday refrigeration problems write for additional free information and literature. Request Circular 711-A, Remco, Inc., Zelienople, Pa.

Keep oil where it belongs...





Available in capacities from 1/6th h.p. to 50 tons . . . for all types of commercial applications.

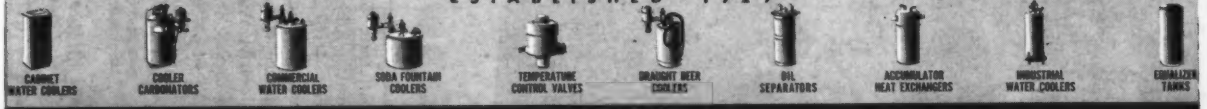
...with a TEMPRITE oil separator

Oil congeals quickly in low temperature coils, cutting down heat transfer and boosting operating time. Because of this common difficulty it is frequently impossible to reach desired temperatures. A Temprite Oil Separator overcomes this problem and permits the refrigerant to boil at its true boiling point. Temperatures from 4 to 7 degrees lower are easily reached at no increase in operating time.

Write now for full particulars.

TEMPRITE PRODUCTS CORP.

ESTABLISHED 1929



Originators of Instantaneous 80° 40° *Liquid Cooling Devices*

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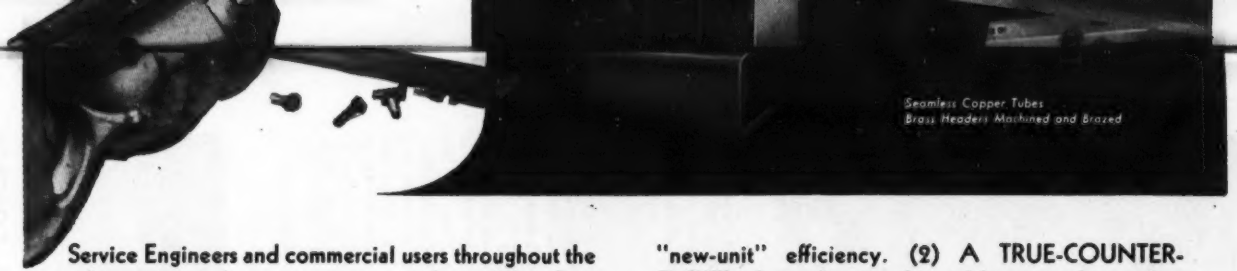
This is the Business End of . . .

HALSTEAD & MITCHELL

Cleanable CONDENSERS

Seamless Copper Tubes
Brass Headers Machined and Brazed



Service Engineers and commercial users throughout the refrigeration industry are now specifying HM Condensers for replacement and conversion orders. These new HM units combine two features never before obtainable in tube-within-a-tube water-cooled condensers; (1) They're CLEANABLE . . . the water tubes are easily accessible at both ends for the spiral cleaning tool to restore the interior water surfaces to "new-unit" efficiency. (2) A TRUE-COUNTER-FLOW relationship is achieved between the coolant and the refrigerant through a unique seamless copper tube-within-a-tube construction that makes obsolete most types of similar water-cooled condensers. Thus, water and space requirements are reduced substantially and a most economical operation is obtained.

JOBBERS in all principal cities carry HM condensers in stock for immediate delivery.

HM Halstead & Mitchell

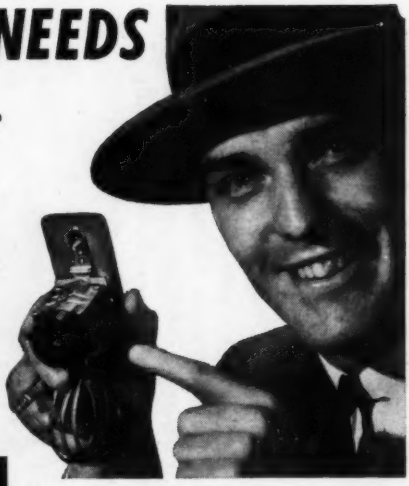
OFFICES: Bessemer Building, Pittsburgh 22, Pa.

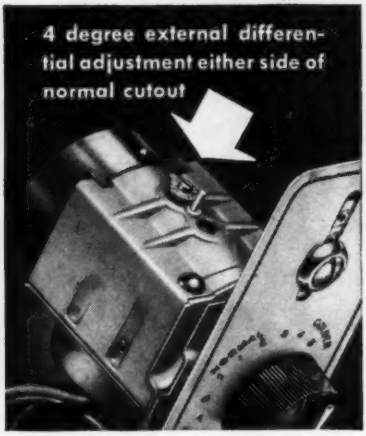
DOUBLE-TUBE COUNTER-FLOW **CLEANABLE** WATER-COOLED CONDENSERS

FILLING ALL NEEDS

The Cutler-Hammer Line of REFRIGERATION REPLACEMENT CONTROL

This One Universal unit alone covers 60% of all needs.





Bul. 9521N9

Adjustable Mounting Brackets

Maximum Mounting Centers..... 4-3/16
Minimum Mounting Centers..... 2-3/16

Adjustable Cutout Feature—Differential can be increased 4 degrees by turning indicator in "Hi" direction and decreased 4 degrees by turning in "Lo" direction.

Adjustable Range—Turning screw clockwise lowers settings and counter-clockwise raises settings.

Operating knob can be adjusted to meet various evaporator scale settings. New knob is ideal for varying shield thicknesses. Makes this control adaptable to wider range of single dial replacement jobs where overload is not required in unit.

The Cutler-Hammer line of Refrigeration Replacement Control will meet all the refrigeration serviceman's requirements. One Cutler-Hammer Control Unit alone . . . the *Universal* Replacement unit . . . will handle 60% of his needs. And where exact replacement control is needed, that item also will be found in the C-H Exact Replacement Control line . . . individually packed, clearly labelled, complete with dial plate, mounting screws, trim washers and full instructions for mounting and adjustment.

Behind this line are 50 years of control specialization and thorough knowledge of merchandising requirements. Thus, the line is recommended by outstanding refrigeration wholesalers from coast to coast and alert service organizations everywhere use it to reduce investment in stock, to insure regular and rapid turnover, faster completion of the job, and greater all-round satisfaction. CUTLER-HAMMER, Inc., 1363 St. Paul Ave., Milwaukee 1, Wisconsin.

CUTLER-HAMMER
MOTOR CONTROL
C-H

DOMESTIC, SEMI-COMMERCIAL AND COMMERCIAL CONTROL

For Special Applications

Ranco Type O-1414 Temperature Control for milk cooler use where temperature at the control or on the capillary tube may, at times, be lower than the controlling bulb temperature.

Whatever the application, you'll find a Ranco Refrigeration Control designed to meet your specific requirements. Check with Ranco first on special applications requiring special control . . . you'll find the same selected materials and precision engineering in every Ranco Control . . . and you can be sure of the same dependable, trouble-free service you've learned to expect when you choose Ranco. Your Ranco wholesaler will be pleased to work with you in selecting the right control for every application.

- *Specialists in Refrigeration*
- *Dependability*
- *Greater Customer Satisfaction*
- *More Ranco Controls In Use*
- *Less Stock To Carry*
- *More Profit For You*

✓CHECK with *Ranco* FIRST

Ranco Inc. COLUMBUS 1, OHIO

World's Largest Manufacturers of REFRIGERATION CONTROLS

THE REFRIGERATION SERVICE ENGINEER

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Vol. 16 MARCH, 1948 No. 3

Contents

"Freon" Shipments Reduced!

Shipments of "Freon" in cylinders have been cut. Greater reduction may be necessary. This is simply because Kinetic is not receiving enough empty cylinders to maintain its previous high rate of shipment.

No cylinders... no "Freon"! The situation now has reached that very critical stage.

Loaded "Freon" cylinders shipped during recent months have far exceeded empty cylinders returned.

New cylinders on order are delayed because shortages of steel continue.

Production of "Freon" is not the problem. Lack of cylinders is!

You who have loaded "Freon" cylinders in storage, why not charge systems now in anticipation of spring requirements? You'll be ahead of the game, and the emptied cylinders can be put back into circulation.

Only the return of empty "Freon" cylinders NOW will allow continued deliveries of "Freon" to meet spring and summer requirements.

Will you help? Return every empty "Freon" cylinder today. Remember... no cylinders... no "Freon"!

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Ship empties freight collect to:

Kinetic Chemicals, Inc., Carney's Point, N. J.

(specify PRSL on carrier)

KINETIC

FREON

REG. U.S. PAT. OFF.

safe refrigerants

IN THIS ISSUE

OPERATING and servicing a cascade type of low temperature refrigerating system is much different from the conventional single stage system, and civilian operators who have taken over these units from Army and Navy personnel without the benefit of operating instructions, find them difficult. The article "Operating and Servicing the Deepfreeze —120 Cooler" on page 33, should help in this situation. .

CONTROLLING the capacity of refrigerating and air conditioning compressors must be automatic to be of value. Both automatic and manual methods have been attempted before, but the latest and a very interesting automatic method now being included in one manufacturer's compressor is described on page 40.

A NEW automatic defrost system for commercial application is being introduced by a manufacturer of refrigeration equipment, which is entirely separated from the refrigerating cycle. A description of the system is contained on page 43.

ONE of the Service Pointers appearing on page 46 describes a homemade dehydrating oven made from an old refrigerator. It is suitable for most domestic and small commercial work.

IT SEEMS contradictory to say that heat should be added to a freezer to keep it from freezing, yet that is what is being done. Moisture and frost entering the insulation of the floors of freezers can soon wreck those floors and heat is necessary to prevent their freezing. See the article on page 50.

HOW much refrigeration to freeze 900 dozen rolls, is one of the questions this month answered in the Questions and Answers Department. It appears on page 49.

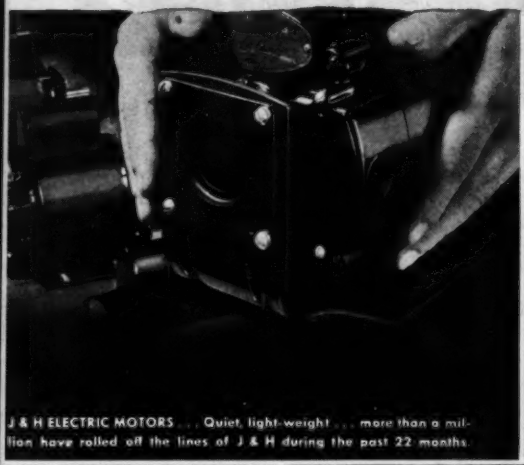
A COMPLETE report of the 10th annual RSES convention, the 5th All-Industry Exhibition, the REWA annual meeting, and the NARC annual meeting, appears in this issue beginning on page 51.

ONE does not think of tapping a beer barrel as a hazardous job yet serious accidents can occur during this simple operation if precautions are not taken. The article "The Beer Barrel Hazard" appearing on page 84 points out the precautions which should be taken.

COVER

PICTURED on our front cover are views of the RSES Annual Convention and All-Industry Exhibition held in Cleveland, Ohio, the latter part of January. The top two pictures were taken during the opening ceremonies of the All-Industry show, January 26. Left to right in the center row of pictures are: W. W. Allison, International President of RSES, and Mrs. R. C. McCarthy, International President of the Ladies Auxiliary, who led the grand march during the RSES get-together party, Jan. 21; the visitor who traveled the longest distance, E. E. Ebeling, Sydney, Australia, offering some information during one of the educational meetings; W. W. Allison presenting the gavel to newly elected International President Wm. Marshall of Toronto, Canada. In the bottom two pictures are, left, a view of the RSES Annual Banquet, and, right, one of the meetings of the Ladies Auxiliary.

Here's to Quality!



J & H ELECTRIC MOTORS . . . Quiet, light-weight . . . more than a million have rolled off the lines of J & H during the past 22 months.

J & H CONDENSING UNITS . . . Exceptionally quiet and economical . . . improving the performance of milk coolers, freezers, ice cream cabinets and other refrigeration equipment.

& H BALL BEARINGS . . . Made to ew high standards of controlled recision . . . super-hard and tough . . today are reducing friction and ear in automobiles, machinery nd appliances.

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J & H AIRCRAFT PRODUCTS . . . Starters, generators, inverters, aircraft motors and other components . . . now manufactured by a streamlined, consolidated J & H Aviation Division.

Jack & Heintz products . . . *mass produced* with laboratory *precision* . . . are bringing to appliances, machines, tools and engines a new high standard of quiet, smooth dependable performance. Ask for these J & H products for outstanding *quality*.

Better products through

JACK & HEINTZ

Mass Precision

JACK & HEINTZ PRECISION INDUSTRIES, INC., *Cleveland, 1, Ohio*

Operating and Servicing the Deepfreeze -120 Cooler

FOR low temperature refrigeration, either of two systems of refrigeration may be used, using more than one stage of compression. One is called the cascade system and the other the multi-stage system.

In the cascade system there are as many complete cycles of evaporation and condensation as there are cascade stages. In the multi-stage compression system there is but one cycle of evaporation and condensation. In the cascade system the heat is moved in successive cycles, whereas in the multi-stage compression system, the pressure of the single refrigerant is raised by several stages of compression, one compressor boosting the refrigerant into the next with an increase in pressure at each stage.

The —120 cascade belongs to the former system, wherein ethane, a highly volatile refrigerant, which boils at the temperature of —120 F. at atmospheric pressure is used as the primary refrigerant. It is compressed by one compressor and condensed at the temperature of approximately —30 F. by refrigerating it with propane, a less volatile refrigerant, which boils at about —45 F. at atmospheric pressure. The propane is then compressed and condensed by two air condensers at atmospheric temperature and at a pressure of about the same as that at which the ethane is condensed, namely, about 150 lbs. per square inch. By using these two stages in the cascade, both the ethane and propane compressors are operating at approximately the same favorable circumstances of back pressure, and head pressure, and operating with about the same volumetric efficiency.

Explanation of the Cycles—Propane

We can start to trace the circuit of the refrigerant starting at any point in the system. Because the propane cycle must be started before the ethane can be started up, we will start by describing the propane circuit first.

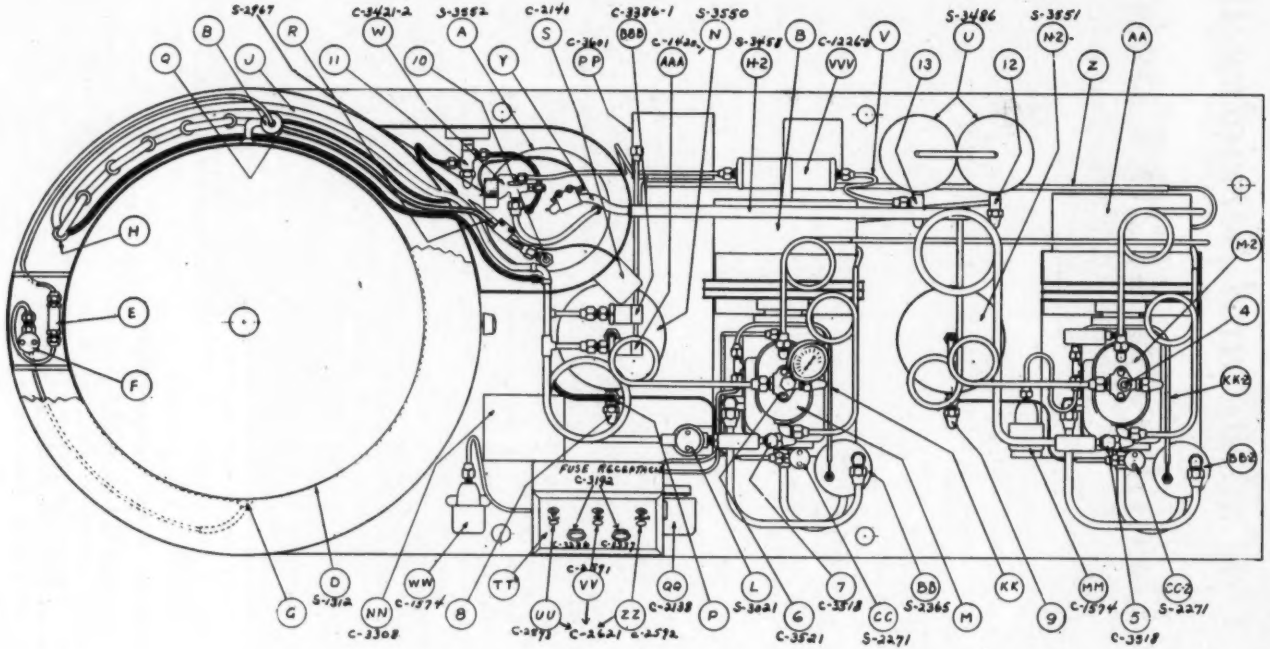
The liquid propane is stored in the receiver. The liquid issues from the receiver through receiver service valve 13, (See schematic view of system) then into thermostatic expansion valve, it then enters the condenser receiver where it absorbs the heat given off by the ethane surrounding the propane coil in the condenser receiver. The propane vapor then passes a frost-back suppressor or heat interchanger, and thence along the suction line back to the compressor, entering the compressor after passing through the suction service valve 5.

Many of the Deepfreeze industrial coolers manufactured during the war for the Army and Navy have apparently fallen into the hands of civilian operators and servicemen who, judging by inquiries received, are finding them difficult to understand. This explanation of the cycle of operation, therefore, should be helpful.

The compressed gas mixed with a small proportion of oil issues from the compressor at the high side service valve 4, and enters the oil separator. After being freed of the entrained oil, the superheated refrigerant passes through the outside space of the frost-back suppressor, through the outside rows of the first propane condenser, thence to cool the head of propane compressor as the gas is now a saturated vapor at about 135 to 165 lbs. pressure, depending on the ambient temperature.

The liquid then is further cooled in the inner coils of the propane condenser and from there cools the head of the ethane compressor. The refrigerant then enters the condenser coil near the ethane compressor where it is cooled back to about atmospheric temperature and enters the receiver as liquid propane and is ready for use again.

Plan view of the — 120 Deepfreeze Industrial Cooler with parts identification reference numbers.



The thermostatic expansion valve has a bulb clamped to and receives its heat from the propane suction line immediately after it comes out of the condenser receiver.

Oil is separated from the propane gas by the oil separator which returns it to the crankcase of the compressor as follows:

The oil level in the oil float chamber is the same as the level in the crank case. When the float drops to a predetermined low point, electric contacts are closed and electric power energizes a magnetic valve which opens and permits oil to flow back into the crank case from the supply that accumulated in the separator. A signal light is lighted when this contact is made. The same oil return arrangement applies to the ethane compressor. The wiring of this and the other electric circuits are shown on the accompanying wiring diagram. The later model cascade units use a mechanical oil float in place of the above described electric oil system.

Explanation of the Ethane Cycle

Again the circuit can be traced beginning at any point. Inasmuch as the ethane confined in the condenser-receiver, when the machine is shut down, we will start at this point.

The liquid ethane is cooled down to -35 F. or -40 F. by the propane cycle in the condenser-receiver. After the ethane is cold, the receiver valves 10 and 11 may be opened. Liquid ethane then flows from the condenser-receiver into a heat exchanger, where after the machine is operating is further cooled by the cold ethane gas leaving the cold cylinder or evaporator. The liquid ethane travels through a strainer and then to the magnetic valve located inside the cold cylinder shell at the back of the cold cylinder. (The action and construction of this valve is described later.) From the valve it expands into the cold cylinder and flows around the space to be chilled. In this chamber a temperature of —120 F. is obtained and it is here that the work of removing heat from the product being treated (or chilled) is performed.

The gas, after picking up heat, but still very cold passes around the incoming liquid refrigerant in the first leg of the heat-exchanger, thence through the inner tubing of the heat-exchanger, out of the cold cylinder shell past a 210 lb. safety valve to the suction throttling contactor valve, called the STC valve. The action of this will be explained later. The gas then passes through the suction service valve 7, into the ethane compressor where it is compressed. Leaving the ethane compressor, after being compressed, the super-heated gas passes through the discharge service valve 6, into the oil separator. The oil-free superheated gas then passes through the check valve on the side of the separator, past the 400 lb. safety valve and enters the far leg of the outside passage of the heat-exchanger. The gas is warm and a larger part of its heat is taken by the cool suction gas coming from the cold cylinder. Thence, the chilled gas travels back to the receiver-condenser where the propane system removes additional heat in the ethane gas and it becomes a liquid ready for use when the STC valve calls for refrigerant.

Suction Throttling Contactor Valve

The STC valve (suction throttling contactor valve) serves two important purposes. First, through a bellows operated micro switch it electrically controls the amount of refrigerant that flows through the magnetic expansion at the base of the cold cylinder.

When the pressure in the suction line drops to about 2 lbs. the STC micro switch closes and the electric current opens the magnetic valve in the rear allowing more refrigerant to flow. When the ethane gas pressure rises to about 3 lbs. in the suction line the micro switch contacts are opened and the spring loaded magnetic valve closes, shutting off the flow of refrigerant.

The second function of the STC valve is control by throttling the flow of the return ethane gas to the compressor. The valve is set to limit the back pressure on the compressor to 10 lbs. This pressure may be less than 10 lbs. but cannot exceed 10 lbs. The purpose of this is to prevent the compressor from being overloaded by too high a back pressure.

Magnetic Valve

The magnetic valve is a needle valve controlled by an electric magnet. The valve is wide open when energized and shut tight by a spring when not energized.

Servicing the —120 Cascade Unit

A. Causes and Remedies, Propane Circuit

The propane Circuit cools the ethane and the ethane refrigeration circuit depends on the propane system for its correct operating

pressure. If the propane circuit fails for one reason or the other, the ethane system will automatically become inoperative, due to the increase in temperature in the condenser-receiver assembly, causing the high pressure control to stop this motor. This control is set to cut out at 210 lbs. pressure.

1. Sources of trouble in propane system. When the ethane system cuts out at high pressure, look for the cause by the following troubles in the propane circuit:

a. Shortage of propane.

b. Expansion valve closed, stabilizer burnt out, valve stuck due to moisture.

c. Discharge or suction valve reeds not holding.

d. High head pressure caused by air in system, dirty condenser.

e. Restricted dehydrator, clogged compressor or expansion valve screen.

2. The way to identify the trouble under paragraph 1 above, and the cure.

a. Both compressor cylinder heads will be exceedingly warm. Expansion valve will have a hissing sound and compound guage will usually read around three pounds pressure.

Bubble Test for Leaks

Locate leak where propane has escaped, by using soap bubbles and a small brush. If leak cannot be located in the above manner, the most satisfactory way to locate same, is to blow out all the propane refrigerant after pumping the ethane back into the condenser-receiver. Let condenser-receiver warm up for at least twenty-four hours, then add Freon 12 or Freon 22 to propane system and test for leaks, using a Halide Leak Detector Torch. It is good practice to leave the Freon in system for twelve hours, then test again, as oil in the system will have been washed away from the opening and leak will be much easier to locate.

Repair leak, then evacuate machine before adding propane to system. This is accomplished in the following manner: Turn discharge valve stem all the way in or clockwise until firmly seated. Remove port plug from valve and operate machine until no gas emits from port. Re-install port plug and turn discharge valve stem counter clockwise until firmly back seated. Now machine can be recharged with propane.

If leak can be located and repaired without losing the entire propane charge, do not add over one (1) lb. at each addition, allowing sufficient time between additions for machine to cool the propane coil.

b. If valve cannot be freed by tapping or adjusting superheat, replace valve. Be sure stabilizer is operating before replacing valve, as a burnt out stabilizer will give the same symptoms as a closed valve. To correct moisture trouble in the expansion valve, pump down the propane system and install a service dryer filled with calcium chloride. Repeat this procedure, after dryer has been in system not longer than forty-eight (48) hours. If the moisture is still evident, use a fresh charge of drying agent. After moisture is removed, install a standard Silica Gel dryer.

c. Replace Valve Plate Assembly.

d. Purge air from system, by loosening compression line at compressor head and allow gas and air to escape very slowly. Be sure there are no open flames near the machine while purging in this manner. If the air has entered the system from some unknown source it is well to check the low side of the system for leaks with Freon, as described in paragraph 2-a, to prevent re-recurrence of this trouble and the entrance of moisture to the system. It may be necessary to add more refrigerant to the system after purging, as some will have been lost. Clean condenser faces and move machine to a cooler location.

e. Frost will be noticed collecting on the cold surface beyond the restricted area. Replace dehydrator. Machine will short cycle if either the compressor or expansion valve screens are partially restricted. Clean screens by washing in naphtha gasoline and drying thoroughly before reinstalling.

B. Failure of Machine to Reach —120 F.

1. If the machine fails to reach temperature (i.e. —120) and the propane system is operating satisfactorily, look for one of the following troubles:

a. Shortage of ethane refrigerant.

b. STC valve inoperative or micro switch of STC valve sticking closed or not making contact.

c. Magnetic valve not opening, partially open or wide open.

d. Limit control or inherent control set too warm.

e. Discharge or suction reed not holding, thereby impairing efficiency of compressor.

f. Restricted zenith filter, ahead of magnetic valve.

g. Ethane refrigerant not up to specifications.

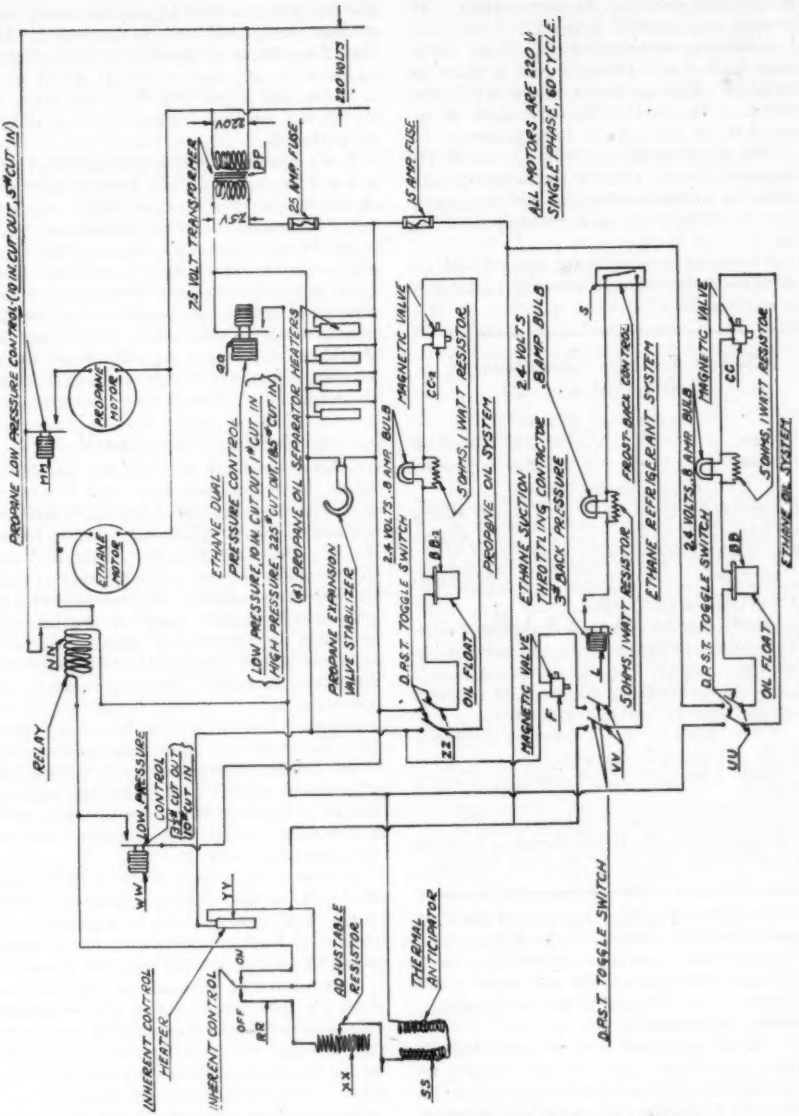


Diagram of electrical circuits used in Deepfreeze —120 Industrial Cooler.

2. To Cure the Causes Listed Above

a. Temperature will not be reached if machine is short of ethane. Add refrigerant to system, but not over one pound at each addition. Let machine operate a sufficient length of time to see if temperature is attained.

b. STC contactor mechanism sticking or actuating arm bent. Free up mechanism and straighten arm. Replace micro switch.

If above operations do not correct STC trouble, replace STC assembly.

A sticking micro switch will cause a constant feed of refrigerant to cold cylinder. In turn, the throtting device of the STC valve will keep the suction inlet pressure at approximately ten pounds back pressure.

This same condition will prevail if the magnetic valve is stuck partially or wide open, or if limit control is not opening to cut off refrigerant flow through magnetic valve.

Micro switch not making contact will not open magnetic valve to allow refrigerant to flow to cold cylinder.

Switch Settings, Quantities of Refrigerant and Oil

Refrigerant Charge

Ethane .....5 lbs. by weight
Propane .....4 lbs. by weight

Oil Separator Charge

Ethane D-50 F-50 .....40 ounces
Propane D-50 F-50 .....40 ounces
For each compressor — ethane — propane .....32 ounces

SWITCH SETTINGS

Ethane Circuit: Detroit Lubricator Control—High pressure cut out 210 lbs. to 225 lbs.

Detroit Lubricator Control—Low pressure cut in 1 lb.—10" vacuum cut out.

White Rodgers Low Pressure Control—10 lb. cut in—4 lb. cut out.

White Rodgers Temperature Control —20 F.

Suction Throttling Contractor 2½".

Propane Circuit: White Rodgers Pressure Control 5 lb. cut in—8" vacuum cut out.

This same condition will exist if the limit control will not close or make contact.

If the STC valve is set below two pounds pressure the machine will not remove 1000 Btu's per hour. (This is the rated capacity of the 120 Cascade.)

c. If the magnetic valve is stuck shut, the panel board pilot light will burn constantly, the machine will not operate and cold cylinder will be warm. A completely restricted zenith filter will give the same symptoms. If the magnetic valve opens partially there will be a tendency for STC valve to contact for long periods. The same effect will be caused by a partially restricted zenith filter. A valve that is wide open will tend to frost the suction line leading to the compressor. Suction pressure will be approximately ten pounds, being held at this amount by the throttling device of the STC valve. Cylinder temperature will tend to rise. If zenith filter is clean and micro switch is not stuck in the "ON" position, magnetic valve should be replaced.

d. To check magnetic refrigerant valve, proceed as follows: Close refrigerant valve at condenser-receiver, turn REF switch to "OFF" position when pilot light on panel board burns constantly. Let machine operate and cycle off of its own accord. Next open condenser-receiver valve and watch compound gauge, if gauge moves to the pressure side of dial, valve is leaking and should be replaced. Be sure head valves of compressor are not leaking back when checking valve. (See 2-f for procedure.)

Setting Frost Control

e. Limit or frost back control should be set at the coldest position (—20 F.) if set at the correct position and control mechanism has varied, it will be necessary to loosen the two screws on the face of the dial and slip the outer portion (with figures) at least ten degrees clockwise. Tighten screws and move dial to coldest position. An inoperative limit control will not permit the circuit to be completed between the STC valve and the magnetic valve. Replace control if inoperative.

Inherent Control set at its coldest position, but does not allow machine to reach —120 F. can be remedied by turning clockwise the brass rod that enters the inherent control body from the under side until control knob is turned three complete turns to cycle machine —120 F.

f. Turn suction valve stem clockwise until firmly seated. Block operating control in the "ON" position and let machine operate for at least one minute. After machine stops, watch compound gauge and if vacuum is destroyed and pressure is greater than three lbs. per minute, valve plate assembly should be replaced. Magnetic oil valve seeping through will give the same symptoms as leak by reeds. Close oil separator valve when testing compressor efficiency.

g. A restricted zenith filter will give the same symptoms as an inoperative magnetic valve. See paragraph "c" under No. 2.

h. Commercial ethane will vary in its boiling point, making it impossible to attain the —120 F. temperature with the STC valve set at two and one-half (2½) lbs. pressure. (A few cases have been found

where the refrigerant was at fault.) The cure for this is to blow the charge and recharge with a new supply of ethane.

Convection Fluid

If a convection fluid is to be used in the cold cylinder as the heat transfer agent, and machine is in regular use, it will be necessary to let the cylinder come up to rooom temperature before putting fluid into the cylinder, by putting warm fluid into a cold temperature cylinder it may crack the cylinder. Trip the panel board switch marked "REF" to the "OFF" position to warm up cylinder. Keep fluid level at least six inches below top edge of cold cylinder when filling. The weight of the fluid will in some cases, distort the cold cylinder, which in turn will put the inherent control out of adjustment so the —120 F. temperature cannot be reached. (See paragraph "d" Inherent Control under "Failure of Machine to Attain —120 F.)

Do not attempt to make any adjustments on any of the controls, unless they have varied from their specified settings, as the wrong adjustment will impair the operation of the machine.

Power supply for machine should be taken from a source that will not be interrupted. The line switch for controlling power supply to machine should be of the type that can be locked either in the "ON" or "OFF" position. This will prevent any one from disconnecting power to machine and in turn save the ethane refrigerant from being lost. Motors should be lubricated every two months with a good grade of auto engine oil—No. 20 or 30 viscosity. Condenser or radiator faces should be cleaned every month, using a long bristled soft brush or compressed air.

SAFETY CODE FOR REFRIGERATION BEING REVISED BY JOINT COMMITTEE

UP-TO-DATE provisions for the safe use and application of mechanical refrigeration are being prepared by a nationally representative committee working under the leadership of the American Society of Refrigerating Engineers. The committee has been reorganized by the American Standards Association to undertake a revision of the 1939 American Standard Safety Code for Mechanical Refrigeration. The code is being revised with two purposes in mind: (1) to put it in a form that will be most easily used by municipal and state authorities; (2) to bring it up-to-date so that safety requirements will be applicable to all the new types of refrigeration equipment.

In reorganizing the committee, under the sponsorship of the American Society of Refrigerating Engineers, active new members were added, and additional organizations were included to represent the new developments in mechanical refrigeration. The committee now is representative of manufacturers of refrigeration equipment, contractors, service engineers, users of the equipment, safety and insurance organizations, and government departments.

Dr. William R. Hainsworth representing the American Society of Refrigerating Engineers is chairman of the reorganized committee; Harry D. Edwards, International Acetylene Association and National Safety Council, is first vice-chairman; E. T. Benson, Air Conditioning and Refrigerating Machinery Association, is second vice-chairman; and D. F. Hayes, American Standards Association, is secretary.

A subcommittee has been appointed for the redrafting of the code and this subcommittee is already actively at work. Subcommittees are also working on provisions for safety valves and on unfired pressure vessels.

With refrigeration equipment winning wide acceptance in such new fields as home freezing units, deep freeze lockers, and frozen food processing, and with greater extension of air conditioning since the war, regulations for safety in the use of refrigeration equipment are being put into effect by many regulatory authorities. The development of new refrigeration equipment and processes during the past 10 years has made the 1939 edition of the American Standard Safety Code inadequate and out of date, and no other standard document is available for regulatory bodies to use as a guide.

The broad application of the revised code is indicated in the fact that it is expected to cover the installation of refrigeration in institutions, places of public assembly, commercial establishments, industrial occupancies, and residences.

The Refrigeration Service Engineer Society is a participating organization in the code revision.

Controlling Capacity of Refrigeration Compressors

THE use of capacity control for refrigeration compressors has increased greatly over the last ten years, particularly on air conditioning applications. Practically since the beginning of mechanical refrigeration, however, there has been a need for obtaining capacity variation and means have been devised for accomplishing this either manually or automatically.

The earlier ammonia units, for example, were often driven by steam engines. Capacity control was simple in this case since the speed of the outfit could be reduced by throttling the steam supply, using some control means actuated by suction pressure or the temperature of the refrigerated space.

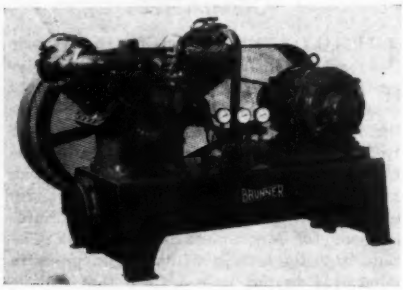
When electric motors came into more general use, the compressors operated on a start-stop cycle which was adequate for most applications—consider a slaughterhouse, however, where the refrigeration load is at a peak immediately after the killing and the meat must be reduced to storage temperature quickly. A condensing unit adequate for this duty would have too much capacity for the normal refrigeration load during the holding period of the carcasses. The unit would short cycle, temperature and humidity in the storage chamber would be difficult or impossible to control and the compressor might be damaged due to loss of its lubricating oil from the frequent fluctuations of pressure. Rapid short cycling would not give the heater elements in the motor starter time to cool off between cycles. The overload would trip the starter and stop the unit.

Another application similar to the above in its varying demands on refrigeration capacity is the milk processing plant. In these stations the peak load occurs during three or four hours in the morning and is ten times or more the normal holding load of the milk storage room. Of course, in these installations where the peak load is of short duration, it is customary to build up refrigeration in the form of cool brine or ice, rather than employ a large unit and then be required to reduce its capacity for the holding duty.

These are but two of the situations which had to be met even in the early days of mechanical refrigeration. One obvious way of getting the desired results was to use a number of condensing units driving the same evaporator and to some extent this is done today although the economics of the scheme are questionable. There are also operating difficulties as novices have discovered.

Early Methods of Control

Another interesting means of obtaining variable capacity is the variable stroke compressor which is not used today to any extent. The name is self-descriptive and the mechanical difficulties evident.

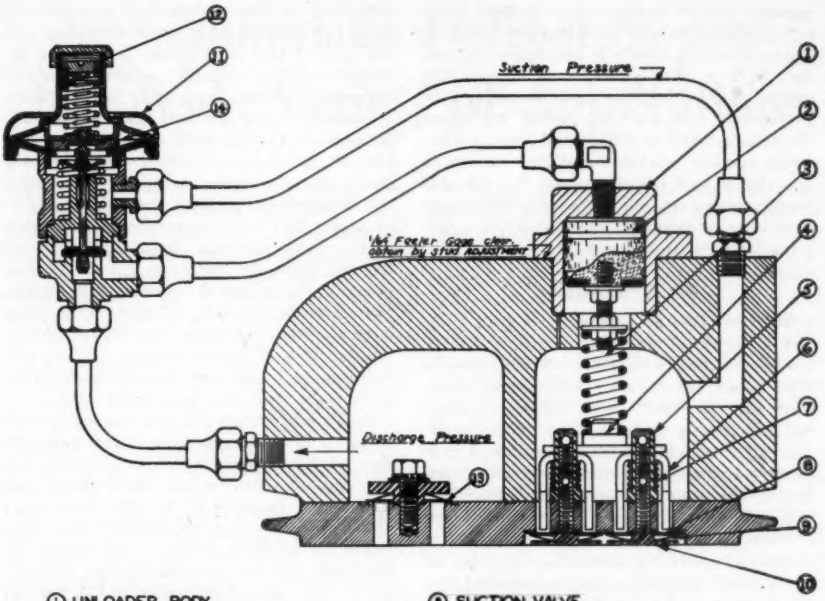


A Brunner 10 hp. compressor equipped with capacity control

Another early method and one used today is that of variable clearance. The compressor is equipped with clearance pockets which are opened up as the refrigeration demand decreases.

Another way of cutting out one or more cylinders completely is the suction bypass. In this scheme the piping is so arranged that when a solenoid valve in one of the branch lines opens, the suction of one cylinder or bank of cylinders is open to the discharge pressure and simultaneously this cylinder or bank is isolated from the evaporator.

Another use of the solenoid valve is its placement in the suction line, again controlled by evaporator pressure or temperature or perhaps temperature of the refrig-



① UNLOADER BODY
② UNLOADER PISTON
③ DEPRESSOR SPRING
④ DEPRESSOR PLATE
⑤ VALVE DEPRESSOR GUIDE
⑥ SUCTION VALVE DEPRESSOR
⑦ RETURN SPRING
⑧ SUCTION VALVE
⑨ SUCTION VALVE SPRING
⑩ SUCTION VALVE RETAINER
⑪ UNLOADER CONTROL VALVE
⑫ UNLOADER ADJUSTING SCREW
⑬ DISCHARGE VALVE ASS'LY
⑭ DIAPHRAM

The Capacity Control Assembly

erated space. A variation of this is a modulating valve also installed in the suction line. The modulating valve decreases or increases its aperture as the refrigeration demand falls off or builds up. This action is preferable to the solenoid in its effect on the compressor since the pressure variation is less abrupt.

Variable speed motors are sometimes used although somewhat expensive even if only two speeds are specified. They are manufactured with as many as five different speeds. In general, this full range of speeds cannot be utilized since the lubrication system will fail if the compressor speed drops below certain minimums.

The Suction Valve Unloader

Probably the most satisfactory means of obtaining capacity control is the suction valve unloader. Referring to the figure "Capacity Control Assembly" it is evident that when unloader piston (2) descends, the suction valves (8) will be held open during the upstroke of the piston. Sufficient pressure to open the discharge valves (13) will not be developed and therefore no gas will flow to the condenser. In the Brunner capacity control system the unloader control valve (11) controls the operation of the unloader piston. When the correct combination of suction gas pressure below the diaphragm and spring pressure above the diaphragm is obtained, the valve opens and admits discharge pressure to the top of the unloader piston. From a study of the unloader control valve mechanism it can be seen that the valve can be made to open at any suction pressure if the unloader adjustment screw (12) is properly set.

This particular means of unloading whereby the suction valves are held open is not new. The means of control, however, is generally a solenoid valve which is installed in place of the unloader control valve (11) shown in the figure. The opening of the solenoid valve is generally controlled by a

pressure switch responsive to suction pressure. This not only adds another element to the assembly shown in the figure but has the further disadvantage of necessarily operating at a rather wide differential. Few pressure or temperature controls will operate satisfactorily at differential pressures between opening and closing of the contacts of less than 5 to 6 psi or degrees F. The unloader control valve (11) shown will admit or release pressure on the piston for a differential pressure change of 1 psi.

Air Conditioning

This closeness of regulation is very valuable in air conditioning applications. Everyone is familiar with the cold but clammy type of air conditioning encountered especially in sea coast towns. Many of these mal-functioning systems are not due to incorrect choice of condensing unit and evaporator surface, but rather are handicapped by lack of proper means of controlling the coil temperature which, of course, is dependent upon the suction pressure.

This, of course, is not to say that use of a capacity controlled compressor will eliminate these ills. Highside control must be coupled with control of the air volume supplied to the conditioned space.

Another instance where close regulation of the suction pressure is necessary is that of liquid cooling. If close temperature regulation is necessary, start and stop operation of the compressor is insufficient. Also in industrial liquid cooling the peak loads may be considerably higher than the normal load and short cycling of the unit is encountered. In the bottling industry the temperature of the water determines how much carbon dioxide it will absorb and close regulation is desirable not only from the economical standpoint but also because excessive carbonation will create high pressures when the capped bottle is warmed to room temperature.

Other applications, either commercial or industrial, will be remembered by refrigeration engineers. Note also that it is possible to recommend a slightly larger unit than necessary for an immediate problem but with the thought in mind of anticipating future requirements.

The user will welcome suction valve unloading as a means of capacity control if the advantages are made evident to him. Besides closeness of control which is obtained with the Brunner system, it is clear that the simplicity of this system is a factor in its proper maintenance in good condition and the cost of the parts comprised in the assembly is low compared to other systems of unloading. Again comparing suction valve unloading with other methods, the user will be interested in the ratio of horsepower per ton of refrigeration under the unloaded condition. The same horsepower per ton is not obtained at partially loaded conditions as under full load because obviously some of the motor power is consumed in pushing the gas back and forth through the suction ports of the unloaded cylinder or cylinders. For example, a four cylinder compressor may use one horsepower per ton of refrigeration at a 40 degree suction. When this compressor is 50 per cent unloaded, the horsepower per ton may increase to, say 1.20. In other words, if 20 horsepower were required to produce 20 tons of refrigeration, then 12 horsepower would be required for 10 tons of refrigeration under half load operation. In most of the alternate types of unloading systems mentioned above, this power to capacity ratio is not nearly as constant. For example, one system required nearly the same horsepower at 50 percent load as it required when the compressor was fully loaded.

SALESMEN WANTED

"THE lack of highly-trained, hard-hitting sales forces may have more affect on American Industry than all the current material shortages combined," H. M. Kelley, Appliance Sales Manager, Frigidaire Division of General Motors warned at a recent meeting.

Kelley contended that salesmanship has not kept pace with the expanding production facilities in most industries. "Since war days," declared Kelley, "industry has constantly improved its facilities and is prepared to produce goods in far greater quantities than the selling profession has ever before experienced. Unless selling men are able to match the production effort with increased sales volumes, the whole industrial scheme may break-down."

He pointed out that when fundamental laws of economics exert their power, and markets return to normal, the production man will point an accusing finger toward an unprepared, inadequate sales force because he can produce more than can be sold.

New Automatic Defrost System Has Wide Variety of Applications

AN ENTIRELY new approach to the problem of automatic defrosting of low temperature evaporators is exemplified in the new Defrost System* in which according to the description furnished by the manufacturer, it is now possible to obtain all the advantages of the automatic hot gas defrost system without any of the objectionable features usually associated with this method of defrosting low temperature evaporators. Reference to the diagram shows the relation of the various components in the new system together with the complete separation of the new system from the condensing unit.

It is claimed that operation of this new system does not result in an excessive temperature rise in the refrigerator. This feature is attributable in part to the speed with which the defrosting is accomplished and in part to the accurate control in timing the defrost and refrigeration cycles. Control of cycles is claimed to be extremely accurate through the unique employment of simple, readily obtainable standard units.

The manufacturer states that the sole aim of the engineering staff was to make this system as simple, economical and foolproof as possible. The system is so arranged that it is not necessary to connect into the discharge side of the compressor. Defrosting capacity and the speed at which defrosting occurs is not limited by the size of the condensing unit, but variations in both capacity and speed of defrosting are provided through simplified controls.

As noted on the diagram, an important component of the defrost system is the Defrostolator*, arranged for floor mounting outside of the refrigerator. This unit consists of an insulated copper tank suitable for holding a fixed quantity of water; a heat exchange surface within the tank; and a low wattage electric immersion heater.

Controls for the system consist of a remote bulb thermostat, a rheostat shown mounted on the outside of the insulated Defrostolator, and a manual switch which can be set for operation on either the automatically alternating defrost and refrigeration cycles or for straight refrigeration without the automatic defrost feature. A starting load throttling valve is furnished for the main suction line, shown at the top right in the diagram. Two small size solenoid valves are supplied, one for the main liquid feed line and the other for the refrigerant drain line from the collector under the cooling unit to the Defrostolator, also shown on the diagram.

It is stated that the cooling unit is especially designed for most efficient operation with the Defrostolator. It contains a special circuit finned coil, and is equipped with a collector for holding a fixed quantity of refrigerant. The collector is mounted under the unit, in the liquid refrigerant drain line to the Defrostolator. It will be noted in the diagram that the unit is supplied with a false bottom underneath, which is mounted on a hot refrigerant coil, to provide quick and complete defrosting at this point during each defrost cycle, and which also includes a drain pan connected to a ⅞" drain line. Each unit is also equipped with a Tenney thermostatic expansion valve.

The manufacturer states that the method of operation of the new automatic defrost system is as follows:

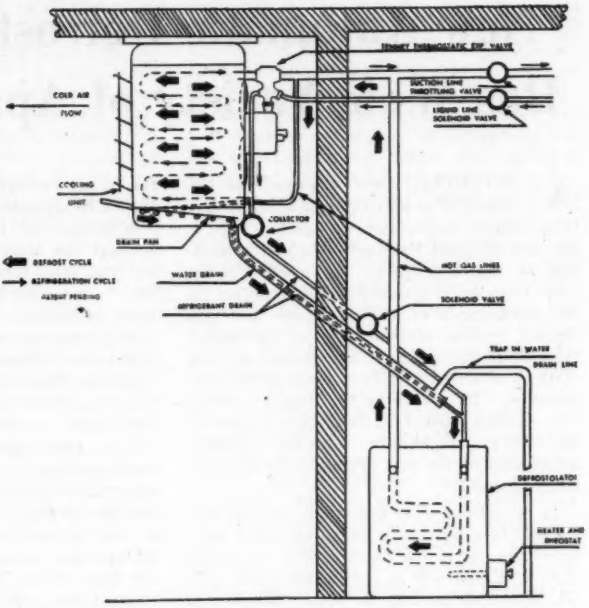
Operation of System

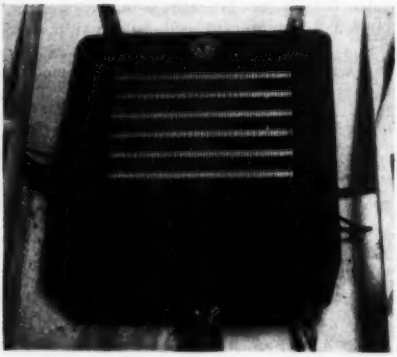
The fixed quantity of water in the Defrostolator is heated to a predetermined temperature by a low wattage electric immersion heater during the refrigeration cycle. The rate of heat flow, and, therefore, the length of the refrigeration cycle, is controlled by a rheostat through which the amount of current passing to the immersion heater can be varied, as desired.

When the pre-determined temperature of the water in the Defrostolator is reached, the automatic thermostat opens the solenoid valve in the refrigerant drain line to the Defrostolator and closes the solenoid valve in the liquid feed line, at the same time shutting off the condensing unit and the fan on the cooling unit.

* Manufactured by Tenney Engineering, Inc. Patent Pending.

The drawing to the right shows the relation of the various components of the new defrost system and the complete separation of the system from the refrigeration condensing unit. The picture below is a view of the cooling unit, designed especially for use with this defrosting system. Bottom right picture is of the defrostolator which is located outside the refrigerated space.





At the start of the defrost cycle, a small amount of liquid refrigerant is contained in the unit cooler and in the collector mounted under the cooling unit. Due to this liquid head and the high temperature maintained in the Defrostolator, hot refrigerant gas passes through the defrost line and is divided, part going to the cooling unit coil and part going to the coil under the false bottom of the drain pan.

The hot gas thus divided provides simultaneous defrosting of both the cooling coil and the water drain pan. The cold surfaces of the evaporator and drain pan cause the hot refrigerant gas to cool and condense, thus imparting its sensible and latent heat to the ice-covered surfaces. The melted ice

drains from the cooling unit through the ⅞" drain line to a waste water reservoir adjacent to the Defrostolator outside the refrigerator.

The warm condensed refrigerant drains by gravity through the defrost drain lines back to the Defrostolator, where it is reheated and vaporized to repeat the cycle. It will be noted in the diagram that the defrost drain line from the drain pan coil is carried inside of the water drain line to a point outside of the refrigerator, to assure complete drainage during each defrost cycle. The fixed quantity of water in the Defrostolator has sufficient heat storage capacity for maximum load conditions for the specific installation.

The temperature differential of the thermostat control unit is so adjusted that it cuts out when the evaporator coil is completely defrosted, simultaneously closing the solenoid valve in the refrigerant drain line, opening the solenoid valve in the liquid feed line, starts the condensing unit and fan on the cooling unit to repeat the refrigeration cycle.

Variable Defrosting Capacity

The defrosting capacity, expressed in heat units, depends on the temperature to which the solution is allowed to cool before the refrigeration cycle is again repeated. This is controlled by the differential setting of the thermostat and is adjustable over a wide range.

Duration of the defrost cycle or speed of defrosting is determined by the temperature of water in the Defrostolator. This can be varied over a wide range and is controlled by the temperature setting of the thermostat.

Variable Refrigeration Cycle

Duration of the refrigeration cycle depends on the time required to replace heat units lost by water in the Defrostolator during the defrost cycle, as represented by the differential setting of the thermostat. Response to this depends on the rate at which heat is added to the water and is controlled by a rheostat having a wide range of adjustments.

An advantage claimed for the automatic hot gas defrost system is that any form of heat may be used for defrost purposes. An example of this is cited in the application of the system to low temperature refrigerated trucks where use is made of the heat in engine exhaust gas that otherwise would be wasted.

The standard form of Defrostolator used in this system is equipped with a low wattage electric immersion heater, but, can be furnished for use with steam, gas or other forms of heat source.

Because of this flexibility as to heat source, it is claimed that this hot gas defrost system is adaptable to a wide variety of applications, though currently being used exclusively on holding room service for frozen foods.

The manufacturer states that 17 sizes of the system are available at present, in refrigeration capacities ranging from approximately 1/3 ton to 3 tons. Defrostolator tank sizes vary from 24"x12"x20" to 36"x18"x24". Standard equipment includes one or more unit coolers equipped with thermostatic expansion valves, a single Defrostolator, and a complete set of defrost controls for simultaneously defrosting all unit coolers furnished with the system.

S S S

A LESSON IN THIRD GRADE ARITHMETIC—1947 VERSION

THE problem: If a farmer has 14 hogs averaging 220 pounds per head, in 1941 and the same number and weight for sale in 1947, which year would his purchasing power be greater and by how much?

The answer: In 1914 he could trade his hogs for one nine-cubic-foot household refrigerator—while in 1947 he would receive a refrigerator of the same capacity with a deluxe electric range, automatic toaster and $20 in change thrown into the bargain.

This isn't hypothetical—it is actually happening in Forest City, Iowa, the heart of the hog and corn belt. John Hanson, furniture store owner and Frigidaire dealer is pricing his appliances and other merchandise in "hogs" not in dollars.

His first customer, Merle Otis, a farmer west of Forest City, hooked up his farm tractor to two trailers and towed 14 hogs to Hanson's store. After a little old-fashion home-spun bargaining and "hand-waving," a satisfied Farmer Otis departed with a new Frigidaire Cold-Wall refrigerator, an electric range of the same brand, an automatic toaster and $20 change in his pocket. Before he left, an equally satisfied Dealer Hanson reminded him that the hogs in 1941 would have purchased only the refrigerator.

SERVICE POINTERS

A department for the exchange of ideas on new devices and methods of improving service work. Five dollars is paid for each pointer published. Write up your idea today and mail it to the Service Pointer Editor.

CLEANING FILES

IN REFRIGERATION work we sometimes get to the point where we find it necessary to do some filing on copper. In doing this, the file will quickly fill up with copper so it won't cut-in any more. But in a short time the file can be made like new again by taking a piece of copper (copper tubing flattened) and scraping the file. This will clean all the copper from the file—*Submitted by Henry Pearson, Faribault, Minn.*

AN AUTOMATIC, ECONOMICAL BAKE OVEN

A RECENT addition to our shop has given us such gratifying results that I would like to pass it on.

Recently I traded for an old Monitor top G.E. that was simply not reparable. Removing the legs and the compressor assembly from the top cover, I dug out an old electric hot plate, mounted it in the bottom of the box and built a steel angle iron rack over it, approximately 4 inches above the burner itself. Next I made a small hole in the right side of the cabinet near the top and mounted an old but usable oven temperature control from an electric range, bending the thermal element so as to lay along the inner porcelain surface. The temp-control itself is wired in series with one wire going to the hot plate.

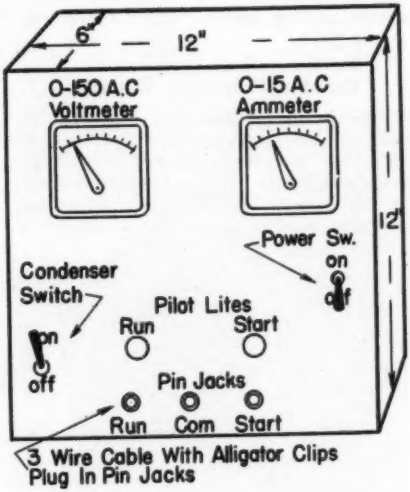
Gauges on Outside

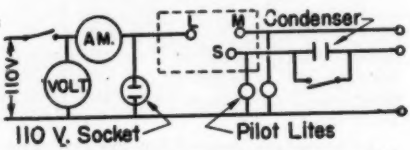
The final step was to make another hole slightly larger than the first about midway up the right side of the cabinet just big enough to handle two ¼ inch flexible charging lines that go to both the high and low side of the compressor that is being baked out. On the outside of the cabinet I mounted a charging manifold complete with high and low side gauges so I won't have to keep opening the door to read them.

It is now a simple matter for me to bake out compressors, coils, etc. Just start my vacuum pump and forget about it until it's ready to shut off.—*Submitted by R. M. Hilts, Anthony, Kan.*

HERMETIC TESTER

HERE is a hermetic test device I built which saves a lot of time. All parts are standard electrical parts plus a ¼ hp. hot wire relay and a capacitor of about 150





mfd. The case can be made of ¼" or ½" plywood. The drawings explain the rest. —*Submitted by R. J. Chambers, Bellflower, Calif.*

REPAIRING MODEL O FRIGIDAIRE

SOME time ago a Model O Frigidaire compressor was brought to me with the flare spud broken off on the intake service valve which is built into the head of the pump and would necessitate replacing the entire head.

After removing the broken spud I found the thread was size ⅝-18, the same as a male ⅜" flare fitting. Since the suction line in this case was ½" tubing, a ½" flare x ⅜" flare reducing union was selected and the ⅜" end threaded into the head. Reconnecting the suction line to the new fitting completed the repair. To prevent a leak at the threads of the new fitting, fit a lead or copper washer over them and coat the same with Osotite or litharge and glycerine before inserting the part into the compressor head.

When other sizes of tubing must be connected, use a fitting with a corresponding size in combination with the ⅜" flare (⅝-18) end.

This not only makes a permanent but an economical repair which can be made right on the job from fittings normally carried by the serviceman.—*Submitted by Lester H. Harris, Marion, Conn.*

* * * *

NU-JOB FOR NU-COIL

THE company I work for had many carbon tetrachloride hand pump fire extinguishers with stuck-up pumps, valves and ports, ready for the scrap heap. I filled them with Nu-Coil and after standing a short time they were free and clear and as good as new.

After rinsing and refilling with fresh carbon tetrachloride they are back on the job and just as important as any other tool in a refrigeration service engineer's kit.—*Submitted by John J. Mulqueen, Brooklyn, N. Y.*

"I UNDERSTAND THAT IN THE STATES YOU HAVE TO PLUG THEM IN."

QUESTIONS AND ANSWERS

Send Your Servicing and Installation Problems to the Question Box.

LOCKER SYSTEM FLOODS BACK

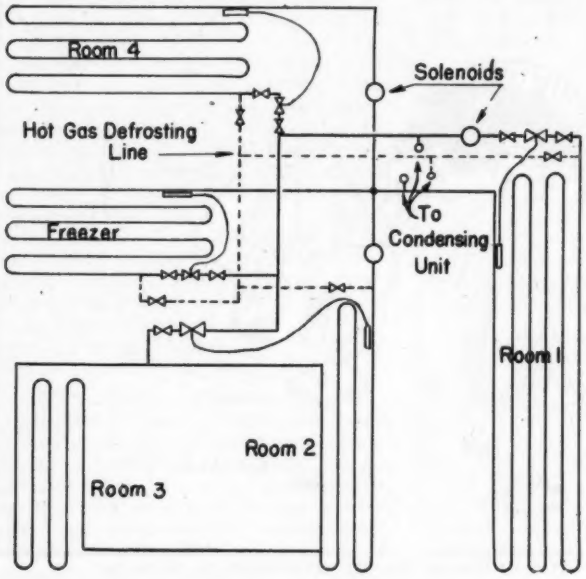
QUESTION 823: I am having trouble on an ammonia machine in a locker plant. I am enclosing a rough diagram. The trouble on this machine is frost back to the compressor.

When I was called in on the job the compressor body was all frost and the owner said it would do it every time it started, and I found it would do it while it was running. I checked the layout in the locker and found the coils in room "1" were being fed in the top coil and out the bottom, with the expansion bulb clamped on the last coil before going in the basement. I changed this over and fed in the bottom coil and out the top coil. Now that room is OK but I still have the frost back.

Then I checked each room separately and I found that when room "4" calls for temperature opening the solenoid valve in the suction line, it floods right into the compressor and the expansion valve will not close until the solenoid valve closes again. The valve is an Alco thermostatic Type TGX. I say this valve is a high temperature valve, but would this be the cause of not closing? The valve seems to be OK otherwise.

On the freezer I set the valve down and it helped for a while, and then it will flood right through again. This valve is OK. The owner said this machine will work fairly good for a short time after it is defrosted, then it starts the same thing over again. There have been several fellows working on it and no one can find the answer.

Room "1" has a solenoid valve ahead of the expansion valve. Rooms "2" and "3" have a solenoid valve in the suction line. Room "4" has a solenoid valve in the suction line. The freezer is connected direct and has no check valve to keep the pressure from backing into it when the other rooms call for temperature. The solenoid valves are controlled by room thermostats that also start the compressor when they call for temperature. The expansion valves used are: Room "1"—Sporlan No. 207-A. Rooms "2" and "3" —Alco Type TGZ. Freezer—Alco Type TGZ. Room "4"—Alco Type TGX.



Moving the solenoid valves from the suction lines to the liquid lines of rooms 2, 3 and 4 and installing a check valve in the suction line of the freezer is suggested as a means of correcting flood-back in this system.

Would it be possible for you to tell me what is wrong or what I should do to correct this trouble and stop this frosting back? The owner is very tired of this trouble and is willing to make any changes that are necessary. The owner would also like to know if there is a better way to defrost. As it is now —one coil is closed off and hot gas is pumped direct from the compressor into this coil until the frost is free of the coil, then they hit the coil with a hammer to drop the frost.

ANSWER: I am of the opinion that your entire trouble is due to off cycle flooding which is permitted by the manner of controlling various coils. Your diagram shows that rooms 2, 3 and 4 are controlled by solenoid valves installed in the suction line, and it would be my recommendation that these solenoid valves be changed to the liquid line.

Where solenoid valves are used in the suction line it is impossible to coordinate the expansion valves to open or close at the same time that the solenoid valves open or close, thus it is impossible to prevent liquid refrigerant from accomulating in the coil during the off cycle. Under such a setup the expansion valve will probably open some time before the solenoid valve opens, but because the suction line is blocked by the solenoid valve, liquid refrigerant is permitted to pile up in the coil. When the temperature rises in the refrigerated space to a sufficient degree that the thermostat opens the solenoid valve, there is a rush of liquid refrigerant back to the compressor. As the compressor continues to run this liquid may be removed and the frost on the suction line may return to a normal position somewhere near the coil.

With the solenoid valve located in the liquid line ahead of the expansion valve, this off cycle flooding cannot occur since no liquid can reach the expansion valve until the room calls for refrigeration and opens the solenoid valve.

Check in Freezer Line

The situation in the sharp freezer is a little different. This coil will be at a lower temperature than any of the others in the system and it is quite probable that vapor from the other coils is being condensed in the sharp freezer coil during the off cycle. Here, again, liquid is permitted to pile up in the freezer coil and when the compressor starts, this liquid will flood back to the compressor. In order to overcome this situation it will be necessary to install a check valve in the suction line of the freezer.

I don't like the arrangement of the coils in rooms 2 and 3 which are fed by one thermostatic expansion valve. There seems to be too much possibility in this arrangement for one coil to be by-passed and for erratic feeding of refrigerant to one or the other of the coils. However, it is just possible that this arrangement is working satisfactorily and that there is no necessity of making a change. Apparently the designer of this system endeavored to save the cost of one expansion valve, and should you have trouble with erratic temperatures in rooms 2 and 3 I would suggest changing to individual feeds using two expansion valves.

I cannot offer any suggestion on a better means of defrosting these coils other than the hot gas system. However, I am inclined to believe that your hot gas in this case is improperly hooked up. It is better practice to connect your hot gas line into the suction side of the coil, then install a by-pass with a valve in it around the expansion valve.

With your present method of hot gas defrosting, the liquid condensed in the coil being defrosted is permitted to pile up until defrosting is completed, then when the system is returned to normal operation this liquid will flood back to the compressor. Damage to the compressor could occur with such an arrangement.

On the other hand, if the hot gas line is connected to the suction side of the coil and the by-pass around the expansion valve opened, the liquid condensed in the coil to be defrosted will be forced back into the liquid line. When returning the system to normal operation and the by-pass valve is closed, there should not be such an excessive amount of liquid left in the coil.

FREEZING ROLLS

QUESTION 824: We propose to furnish blower type coil and air-cooled compressor for a pastry ship to freeze 900 dozen rolls, weighing 1⅛ oz, each from 90 degrees to between zero and minus 5 degrees within four to six hours. The rolls are to be frozen before baking.

The room, approximately 13 ft. x 10 ft. x 8 ft., is insulated with a ceiling of 8 inches of A.E. Board (fiberglas), walls 6 inches of A.E. Board and flooring 6 inches of cork.

We wish you to give us the size of air-cooled compressor and blower coil that is needed to do this job. Also the size of compressor and coils to increase the same room to freeze 1800 dozen rolls of the same length of time.

ANSWER: According to my figures the heat losses through the walls, ceiling and floor of your 13x10x8 ft. baker's cooler will be 67,724 btu. per 24 hours. Adding to this 15% service load, which incidentally is allowing for rather light service, our total btu. loss would be 77,882. If we plan on 14 hour operation per unit, our btu. load per hour will be 5,563.

The 900 dozen rolls at 1⅛ oz. each will be approximately 800 lbs. of dough. I was not able to find any figures which would give me the specific heat or the latent heat of dough, but in my calculations I have used .5 as the specific heat above freezing, .72 as the latent heat, and .3 as the specific heat below freezing.

The time of freezing used in the calculation is 4 hours on a temperature reduction of 90 degrees to —5 degrees. Using these figures the total btu. load to freeze the 900 dozen rolls will be 89,680 btu.—or on a basis of freezing in 4 hours the load will be 22,420 btu. per hour. Adding to this figure our 5,563 btu.'s per hour heat leakage load, we come out with a total of 27,983 btu. per hour.

According to the specifications of one manufacturer's condensing units, this will require a 5 hp. water cooled machine operating on a suction temperature of about 10 or 15 degrees with a 70 degree water inlet temperature. If you want to increase the capacity to freeze 1800 rolls in the 4 hours the total load would increase to 50, 403 Btu. per hour, requiring a 7½ hp. machine.

Using the Btu. totals I have given you here, you can select your coil from the manufacturer's catalog on the basis of this total capacity at the temperature difference between coil and air at the humidity you would like to maintain.

Radiant Heating Protects Floor of Freezing Plant

A NEW food-freezing plant and a dairy, both in Pennsylvania, have been equipped with a unique system of modified radiant heating to prevent concrete floors from buckling and insulation from disintegrating in freezing rooms and refrigerated storage rooms.

Essentially the same problem was involved at the Adams Apple Products Corporation, Aspers, Adams County, Pa., and the Penn Dairies, Inc., Lancaster, Pa. Numerous instances have been recorded where, despite the amount of insulation used, frost has accumulated under the structural slab. In such cases, the insulated floor frequently becomes buckled over a period of time and thus is destroyed. Frosting of the ground underlying the structural slab is the common hazard when low temperatures are employed.

At the dairy and the food plant, the radiant heating systems were installed in aproximately the same manner and are similar in design.

The main freezing room in the Adams plant—used primarily for freezing apples, strawberries, etc.—is about 10-ft. x 75-ft. An ammonia low temperature, two-stage refrigerating system is employed. The structural floor slab, a layer of insulation and the finish floor slab each are 6" thick. In the structural slab, ¾" wrought iron pipe coils were buried during the early stages of construction. Wrought iron was used—as it is for most radiant heating systems—because it is resistant to attacks of corrosion as illustrated by the long-life service records of this material in such applications as brine lines for skating rinks and refrigeration systems. The pipes are in the form of a grid and spaced on 36" centers. Similar installations are in the freezing storage room having temperatures ranging from 0 to —5 F., and a freezing tunnel with —30 F.

Instead of using water protected by antifreeze compounds, the designers selected No. 2 fuel oil as the heating medium that is circulated through the coils. The oil is heated to about 40 F. in a small heat exchanger connected to the plant steam lines. The designers estimate that the heat output is sufficient to prevent freezing of the insulation, even when the temperature is reduced to —30 F. in the rooms. The radiant heat does not penetrate the finish floor slab, however.

A regular radiant heating system is used at the Adams plant for offices, rest rooms and entrance lobby. This system uses hot water as the heating medium and the one inch wrought iron pipe coils are spaced on 12" and 17" centers. Closer spacing of the pipe enables the greater heat output per sq. ft. of floor area necessary to establish comfort conditions. A heat exchanger provides the hot water.

C. C. Kottcamp and Son, York, Pa., installed the heating system at the food freezing plant, and Paul E. Gutfleisch, Lancaster, Pa., was the plumbing and heating contractor for the dairy.

RSES 10th Convention

Provides Four Days of Educational and Business Activity

THE 10th Annual RSES Convention held in Cleveland, January 21 to 24 at the Hollenden Hotel, proved to be four days of intense educational and business activity. During the business sessions new officers were elected, with Wm. Marshall of Toronto, Ont., as president. A number of changes to the Constitution were adopted, and Chicago was selected as the site of the next annual meeting. During the educational sessions a parade of nine educational speakers provided a widely diversified volume of information and several tours afforded brief educational and entertaining diversion.

A get-together party on the evening of the first day and the annual banquet on the evening of the third day added the social touch, completing the enjoyment of the four-day session. Total attendance this year was not as good as last, and the weather generally was cold which no doubt contributed to the smaller turnout. The convention committees made up of members from the state of Ohio and the city of Cleveland, under the general chairmanship of R. D. Hollingsworth, Cleveland, did a remarkable job of arranging the convention and providing for the needs of visitors. Housing, as usual in these post-war years, was difficult, particularly for those without reservations and those making changes in reservations.

Wednesday, January 21

Wednesday morning was devoted to registrations and the convention opened officially at 2:00 p.m. in the Grand Ballroom. R. D. Hollingsworth, President of the Cleveland Chapter and General Chairman of the Convention Committees, called the convention to order, then introduced the International Officers and Board of Directors. Next he introduced the President of the Buckeye State Association, Oren Nichols, Jr., of Medina, Ohio, calling on him for a welcome to the visiting delegates. Mr. Nichols gave a most hearty welcome to the members and pledged his and the local membership efforts toward making their stay a most pleasant one.

Next, Mr. Hollingsworth introduced the various chairmen of the convention committees, commending them on the good work they had done in arranging the convention. These gentlemen in the order in which they were introduced are: Joe Smylie, Asst. to the General Chairman; John A. Brown, Coordinating Chairman; Rod O'Flaherty, Entertainment Committee; Paul Spring, Publicity Committee; Emil Flanik, Housing Committee; R. C. Whitney, Tour Committee; Walter E. Wright, Service Truck Display Committee; Elmer Wiedwald, Reception Committee; and Forrest Poole, Sergeant-at-Arms Committee.

The gavel was turned over to International President W. W. Allison who, upon thanking Mr. Hollingsworth for his opening remarks, explained that due to a heavy cold he had contracted during his trip to the convention, he was unable to deliver the talk he had planned, but promised if at all possible he would return to it at a later business session. Mr. Allison then called for the Secretary's report and H. T. McDermott delivered it from his prepared paper.

RSES 1948 INTERNATIONAL

Officers

Wm. Marshall, Toronto, Ont., *President.*
Chas. C. E. Harris, Cambridge, Mass., *1st Vice-President.*
A. L. Robertson, Madison, Wis., *2nd Vice-President.*
H. T. McDermott, Chicago, Ill., *Secretary.*
M. R. Hanks, San Diego, Cal., *Treasurer.*
W. E. Booth, Richmond, Va., *Sergeant-at-Arms.*
P. E. Reed, Chairman, *International Educational and Examining Board.*

Directors—2 Years

O. C. Yates, Seattle, Wash.; C. W. Neisel, Corpus Christi, Tex.; Floyd H. Lilley, Chicago; Cecil R. Visger, Kansas City, Mo., and J. V. Berger, Denver, Colo.

Directors—1 Year

Earl Yockey, Columbus, Ohio; Nap. Brossoit, Verdun, Que.; W. Tierney, Worcester, Mass.; C. S. Tucker, Birmingham, Ala., and J. L. Driskell, Burley, Idaho.

Secretary's Report

In the opening remarks of his report, Mr. McDermott paid tribute to the efforts of the Cleveland and Buckeye State Association convention committees and to some degree offered apologies for having imposed upon them for two successive years. He then commended the work done by the officers and

W. J. Marshall, Toronto, Ont.
President

C. C. E. Harris, Cambridge
1st Vice President

A. L. Robertson, Madison, Wis.
2nd Vice President

Board of Directors of the past year, stating that he felt his office had an unequaled opportunity of observing the over-all operation of the Society and of comparing its activities from year to year. He stated, "I do not know of a single year in the Society's history where more effort has been expended by the Officers and Directors." The recognition, he said, which we have received from other industry groups has increased considerably and "I do not hesitate to say that this recognition rightfully places our group as one of the most important segments in the advancement of the entire refrigeration industry."

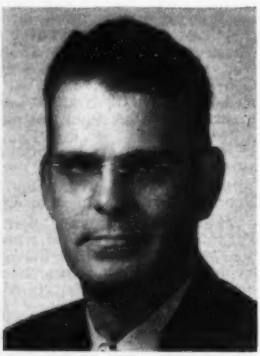
Next, the Secretary touched on the increased cost of operating the International office and the cost of fulfilling some of the ambitions in educational work, stating that in spite of these increased costs and increased activities, the Society was still trying to operate on an income based on the 1933 dollar. In other words he pointed out that the income per member had not been changed since the origin of the Society in 1933. Need of an expanded educational program was stressed as an aid to the chapters and as a further benefit to the individual member. However, much of the planned program must necessarily wait for the funds to carry it out.

Touching on the plan to hold regional educational conferences in the off year between All-Industry shows, Mr. McDermott said he thought this move would bring to the chapters a miniature educational convention and would bring the chapters much closer to the International Society.

In giving a report of the present membership, Mr. McDermott stated that in his last annual report the membership stood at 6,468 members. At the end of this fiscal year membership had reached an all time high of 10,610. Of this number, 7,978 are active members, 361 are certificate members, 1,141 are associate members, and 1,129 junior members. Last year he reported there were 109 local chapters in the United States and Canada, with 6 under formation. This year there are 144 active chapters and 6 under formation. There are 15 chapters with 100 members or over, which are as follows: Boston Chapter 162; Metropolitan New York Chapter 155; Greater Chicago Chapter 153; Twin Cities

H. T. McDermott, Chicago
Secretary

M. R. Hanks, San Diego
Treasurer



W. E. Booth, Richmond, Va.
Sergeant-at-Arms

R.S.E.S. INTERNATIONAL DIRECTORS

J. L. DRISKELL
Burley, Idaho

N. BROSSOIT
Quebec, Can.

EARL YOCKEY
Columbus, Ohio

C. S. TUCKER
Birmingham, Ala.

OLIN C. YATES
Seattle, Wash.

W. TIERNEY
Worcester, Mass.

J. V. BERGER
Denver, Colo.

F. H. LILLEY
Chicago, Ill.

C. W. NEISEL
Corpus Christi, Tex.

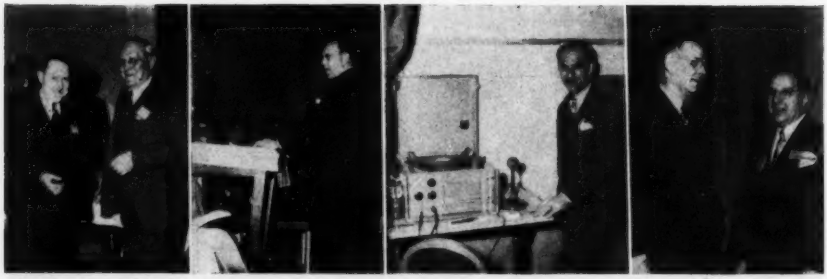
C. R. VISGER
Kansas City, Mo.

PAUL B. REED
Chairman International
Educational Committee

Chapter 145; Ontario Maple Leaf Chapter 137; Houston Chapter 115; Cleveland Chapter 113; Interprovincial Association 113; Philadelphia Chapter 112; Columbus Chapter 111; Los Angeles Chapter 110; Trenton Chapter 108; Monumental Chapter, Baltimore, 107; St. Louis Chapter 107; Central Connecticut Chapter, Hartford, 101.

He announced a new type of membership certificate which will be issued shortly. This certificate will not only be more economical for the Society to handle but will offer greater pride in displaying by the individual member. Each certificate issued will be good for a ten year period instead of the annual issuance as practiced heretofore. Space will be provided on it for a sticker which will indicate that year's dues paid, thus the certificate provides the means of indicating the total length of membership enjoyed by the member. As each member reaches the end of the ten year period he will be issued an identifying mark for his new certificate.

Touching on the financial status of the So-



In this row of pictures, left to right, are: Clarence Buschkopf, past president, talking to former director E. A. Summers; Pat Riley, president of the California Assn., offers a nomination from the floor; T. Alexander of Denver, Colo., who made recordings of all the educational talks; Ed Graff, Ranco, Inc., talking to Irving Alter, Harry Alter Co. Photos by Irving Alter

ciety, Mr. McDermott stated that the Society had operated at a loss for the year but again reminded the membership that while operating expenses and increased activities had demanded the expenditure of greater amounts of money, the income per member was still the same as in 1933. "To effectively carry on the work of your Society, and most important, to provide for the expanded activities that are necessary for the successful expansion of direct benefits to our membership, an adjustment in dues to the International Society is necessary," Mr. McDermott said.

Treasurer's Report

The last order of business was the Treasurer's report presented by C. J. Doyle, in which he showed that the expenditures of the International Society were a little over $5,000 greater than the total income of the Society. Percentagewise the report showed that general and administrative expenses of the Society had decreased 6.01% in 1947 over 1946; that promotional expense had increased 4.47%; educational expense had increased 21.69%. The report showed that the fiscal deficit has been taken care of from the reserves of the Society.

Reports of Committees

Charles C. E. Harris reporting for the RSES group of the committee working with REMA, outlined the plans agreed upon by REMA for the four regional shows to be held in the off years between All-Industry shows. In the present plan REMA will provide booth space free to any exhibitor from the previous All-Industry show, at any one or all four of the regional conferences. Other members or anyone else who qualifies for exhibit space at the conferences will be furnished space at cost. There will be no profit for REMA. REMA will supervise the exhibit end of the refrigeration conferences. All sales activity will be eliminated. Booth space will be limited and the competitive angle will be eliminated. Exhibits will be confined to educational displays only. REMA will bear the expense of the meeting place and of the exhibit.

The first regional show combining the efforts of REMA and RSES will be the 2nd Annual Western Conference and Educational Exhibit, held in San Francisco, April 30, May 1 and 2. There will be another held in Chicago in the Fall of this year, and a third in Boston, Mass., about the first of 1949, with the fourth yet undecided.

In giving a report of the educational activities, Paul Reed, Chairman of the Educational Examining Board, reviewed the ambitions outlined in the last annual report and a written report mailed to members during the past year, stating that immediately after the last annual convention the Board of Directors discussed the subject of the expanded educational program and instructed the Educational Committee to see what could be done to carry it out.

11th ANNUAL RSES CONVENTION SET FOR CHICAGO

November 19-22, Sherman Hotel

Chicago has been selected for the 11th Annual R.S.E.S. Convention.

The dates, November 19, 20, 21 and 22, 1948, with the Hotel Sherman as official headquarters.

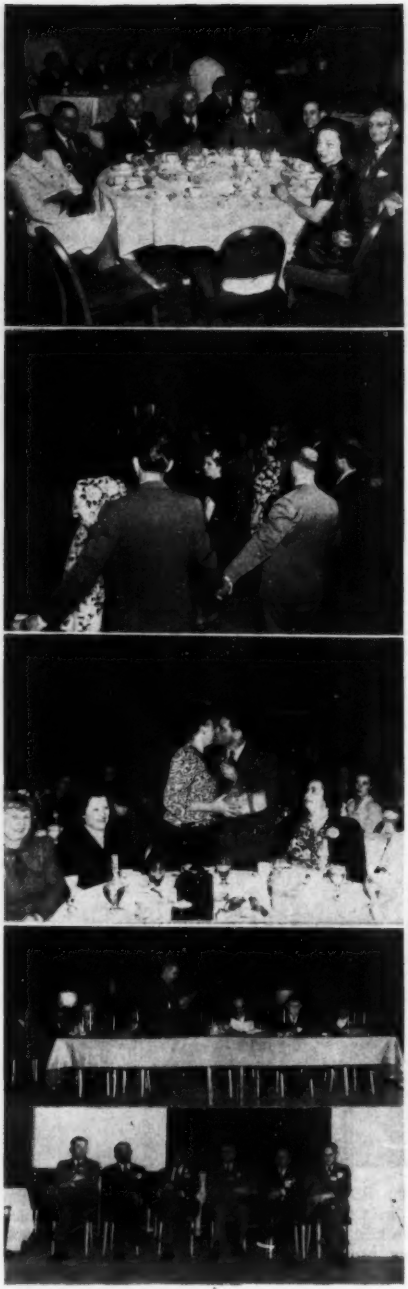
The third of a series of four regional educational exhibits sponsored by the Refrigeration Equipment Manufacturers Assn. will be held in conjunction with the annual convention.

The Treasurer was asked to investigate the cost and ways and means of obtaining the money. An Educational Fund Committee was appointed by President Allison to explore the possibilities of raising the necessary funds. Various plans for raising the money were presented, investigated and rejected and it was finally decided that the only fair and equitable plan, since all members of the Society were to benefit equally, was to ask for an increase of membership dues. This course was decided upon because it was impossible to operate not only the educational program but the general administration expense of the Society due to increased costs of operation.

Much of the expanded educational program, therefore, must wait the funds to carry them

Top left in this group of pictures is a view of the RSES registration desk the first day of the convention as delegates and members checked in. Other photos include views of the annual banquet, part of the speakers' table, views of the Ladies Auxiliary meetings, officers and committee members of the Auxiliary, and the luncheon provided for the ladies.

Photos by Howard Grossman



out. However, in the meantime, Mr. Reed reported, work on the All-Makes Service Manual has gone forward. The membership has already received a few bulletins and the Educational and Examining Board is very active at the present time in building up material for the manual. Later on as the bulletins already issued become sections, the membership will be offered a binder at nominal cost, in which these bulletins can be bound.

Mr. Reed drew attention to the low percentage of active members who have taken the certificate examination and expressed the hope that chapters would take a greater interest in the up-grading of its members.

The next report, delivered by C. J. Doyle, was on the proposed changes to the Constitution and By-Laws which had been submitted in advance to the membership. Mr. Doyle read the proposed changes one by one and his report was accepted by the membership, but voting on the acceptance of the changes themselves was deferred until the following day. In brief, changes to the Constitution provide enabling legislation for the formation of regional groups; the requirement that an active member must be engaged in the refrigeration service industry for a period not less than two years; that an associate member may qualify for active membership as provided for in Section 2 of the Constitution; for the clarification of the status of a junior member; provisions for the addition of members of the Board of Directors from 7 to 10, 5 to be elected in the year 1948 for a period of one year and 5 for a period of two years, and thereafter 5 directors will be elected for a two-year term at each annual meeting.

Proposed changes to the By-Laws provide, among other things, for an increased per capita tax; the automatic transfer of members-at-large to the chapter in which jurisdiction they live; and the creation of a Budget Committee comprising the President, Treasurer and Secretary of the International Society.

Lee Miles of Madison, Wis., was appointed Chairman of the Credentials Committee, and William Wharton of Oakland, Cal., was appointed Chairman of the Resolutions Committee. Wm. Tierney of Worcester, Mass., was asked to serve on the Auditing Committee; and the highly important, hard working Nominating Committee included Wm. Sneath, Toronto, Ont., J. P. Riley, Long Beach, Calif., Wm. McCarley, Joliet, Ill., O. J. Nichols, Jr., Medina, Ohio, J. M. Manley, Montgomery, Ala., M. W. Andreen, Hartford, Conn., and Wallace Lindeman, Corpus Christi, Texas.

Thursday Morning, January 22

Following the custom of previous conventions, this one opened its morning sessions

From top to bottom in these pictures are: A view of the annual banquet; the dance following the banquet; gifts for the retiring officers of the Ladies Auxiliary were presented during the banquet; C. J. Doyle presents a report during business meeting; the board of experts during "information please" program.

Top two photos by Irving Alter.
Balance by Austin Jones.

with the question and answer period conducted by Paul Reed. Included in the Board of Experts for the morning were members of the Educational and Examining Board—Harry Busby, Managing Editor, the Refrigeration Service Engineer, Chicago, Jack Croushore, Universal Cooler Corpn., Marion, Ohio, Dr. W. O. Walker, Director of Research and Development, Ansul Chemical Co., Al Schmitz, Northeastern District Manager for Servel, Inc., John Spence, Service Manager of Hussmann Refrigeration, Inc. The question and answer period was quite a lively session, occupying more than an hour of the morning's time.

E. M. Flannery Talk

Upon its completion the meeting was turned over to President Allison who, after a few brief remarks, introduced E. M. Flannery, President of REMA. Mr. Flannery extended a cordial invitation to the meeting to visit the All-Industry show opening the following Monday, stating that there were 228 booths with 178 individual manufacturing exhibits and that it was expected there would be more and better things to see this year than any other previous year. He paid tribute to the work of RSES and made special mention of the forthcoming Western Regional show in which he stated REMA would be cooperating as well as other regional exhibits. Mr. Flannery then stated some figures on the production of refrigeration equipment in the past year, asserting that the year 1947 had seen the greatest production in the history of the industry and that there were better years to come. "The total dollar value of sales of refrigerating and air conditioning equipment last year," he stated, "was up to some 450% over 1940, or about 175% if we adjust for today's inflated dollar. The refrigeration and air conditioning industry is still the fastest growing major industry and has a capacity to produce two to three times the volume of equipment manufactured before the war." Although expressing the opinion that the easy sales are gone, Mr. Flannery stated that everyone should have no difficulty in making good profits in the future if they are willing to work.

The next speaker introduced by President Allison was J. H. Downs, pinchhitting for President George Roche of the Refrigeration Equipment Wholesalers Association. Mr. Roche was detained on jury duty and could not be present. In his talk, Mr. Downs traced briefly the history of the service and wholesaling industries which he stated had been very closely allied during the years of their respective growth. He cited the difficulties and growing pains encountered by both and lauded the cooperation by the two organizations which made many knotty problems much easier to solve.

After re-stating the policy of REWA as it affects the refrigeration service industry, Mr. Downs said there was one thing his directors wanted him to affirm and that is "our belief, and our interest, and our identity with RSES." Mr. Allison thanked Mr. Downs for his kindly words and brought out the fact that Mr. Downs at one time was International President of RSES.

The next speaker to be introduced was W. W. Farr, President of the National Association of Refrigeration Contractors. Since the contractors' association headquarters are in Cleveland, Mr. Farr extended a cordial invitation to the visitors to use the facilities of the contractors' office in any way they desired. He outlined some of the mutual interests enjoyed by both RSES and NARC and made the suggestion that at some future time the two associations give thought to a joint meeting and possibly joint social affairs in conjunction with the meeting. "This year has shown many evidences of splendid cooperation between our national offices and national officers, and the Board of Directors of NARC take this opportunity to wish you every success for your meeting and to offer any cooperation necessary on matters of mutual interest."

Lee Miles, Chairman of the Credentials Committee, submitted the report of his committee which was accepted.

A vote on the adoption of the proposed changes to the Constitution and By-Laws was then taken and after the motion to adopt the changes by R. Keil, Philadelphia and seconded by J. M. Manley, Montgomery, Ala. the changes were adopted as proposed.

The meeting was then turned over to Paul Reed, Chairman of the Educational and Examining Board, to conduct the educational program. A. M. Fenwick of Cleveland, Ohio, was the first scheduled speaker. However, as announced by Mr. Reed, Mr. Fenwick was ill and unable to attend the meeting, therefore the first speaker introduced for the morning was A. M. Schmitz of Servel, Inc., Evansville, Ind., who spoke on the subject "Servicemen—What of Your Future?"

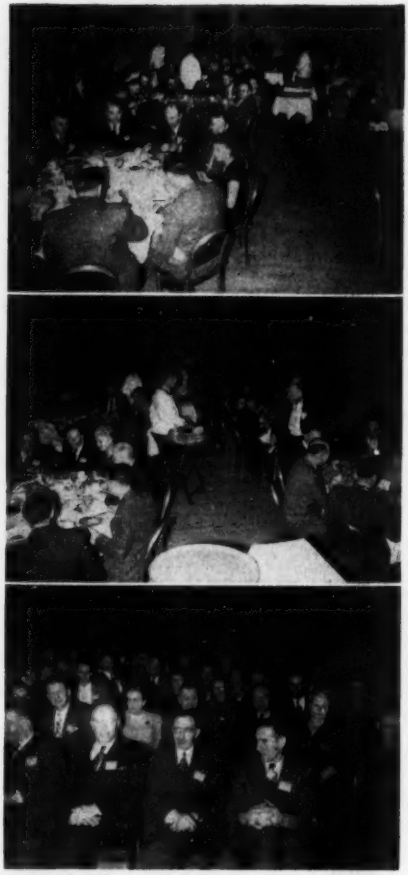
Beginning with the trials and tribulations of the industry during the war years, Mr. Schmitz traced the development of the refrigeration industry, endeavoring to point out trends and the signs indicating where we are going. Stating that while he believed the members of the Society were on the right track in their purpose to improve their knowledge of refrigeration, he expressed the opinion that we cannot stop there. He stated he did not believe it is possible, mechanically speaking, to gain the heights of success aimed at, and that rather than try to become expert mechanics it might be better to devote some of the time to a broadening of knowledge in the refrigeration industry. He went on further to stress the need for more application knowledge and more efforts in sales.

Educational Tours

Thursday afternoon was devoted to a choice of one of three tours, all of which left the region of the hotel at the same hour. One of these tours was to the General Electric, Nela Park plant; another to the Sears Roebuck Reclaiming Station, where re-operation of the Coldspot unit was to be seen; and the third to the National Aeronautical Laboratory.

Friday Morning, January 23

Upon completion of the usual question and answer period conducted by Paul Reed, George H. Clark of Detroit Air Conditioning Institute, presented his talk on "Leak Detection." Using a large schematic drawing of the refrigerating system, Mr. Clark reviewed



The above three views were taken during the get-together party which started with a dinner followed by several acts of entertainment.

Photos by Howard Grossman

the various well known and some lesser known methods of leak detection. He stressed the danger of using pure oxygen as a pressure medium, then discussed the bubble test method, the Halide torch method, the black light method and various other means of determining where the leak occurs.

Brought out in the discussion was the interesting fact that the various dyes that may be used in oils and refrigerants as a means of leak detection are quickly taken up by drying agents, particularly such drying agents as silica gel, so that their value is limited to a short time after the dye is injected in the system when a dryer is also a part of that system.

Upon completion of his talk, Mr. Clark introduced the next speaker, Paul Reed, Chairman of the Educational and Examining Board. Mr. Reed talked on the subject "Reverse Cycle Refrigeration," in which he covered much of the history of development thus far, and described in detail a few of the installations in operation around the country. He discussed to some extent the economical aspects of this method of heating and some of the engineering necessary in the design of a good system. A great deal of interest was displayed in this talk and a considerable question period followed.

Mr. Reed introduced, during the course of his talk, T. Alexander who had been keeping himself backstage making sound recordings of all the educational talks. Mr. Alexander, who comes from Denver, Colo., makes recordings as a hobby and it was his hope to be able to supply a copy of these recordings to the International Society.

Friday Afternoon

John Spence, Service Manager of Hussmann, Inc., delivered the first talk of the afternoon on the subject "Refrigeration of Fresh Meats." Mr. Spence provided a very thorough explanation of the mechanics involved in refrigerating fresh meat, classifying the problem into the types of fixtures used such as the closed refrigerated display case, the walk-in cooler for bulk storage, and the open self-service refrigerated display case. He went into detail in the matters of types of system used and the refrigerating equipment required, the problems involved in merchandising fresh meat, the proper coiling, control settings, desired air circulation and best temperatures.

He then entered into the very interesting phase of the causes of shrinkage in meat, the effects of fixture lights and other lighting on the appearance of meat and the reason for discoloration of meat due to such things as unventilated gas heaters, high intensity lighting and other causes. He gave a very thorough explanation of the use of the open display case, its constructional features and some of the service problems to be encountered.

No meeting of the RSES would be complete without a talk on the subject of moisture and the foreign matters found in refrigerating systems, and it was at this point that Dr. W. O. Walker of the Ansul Chemical Company, was called upon to present his talk on "Solids in Refrigerating Systems." In a rapid

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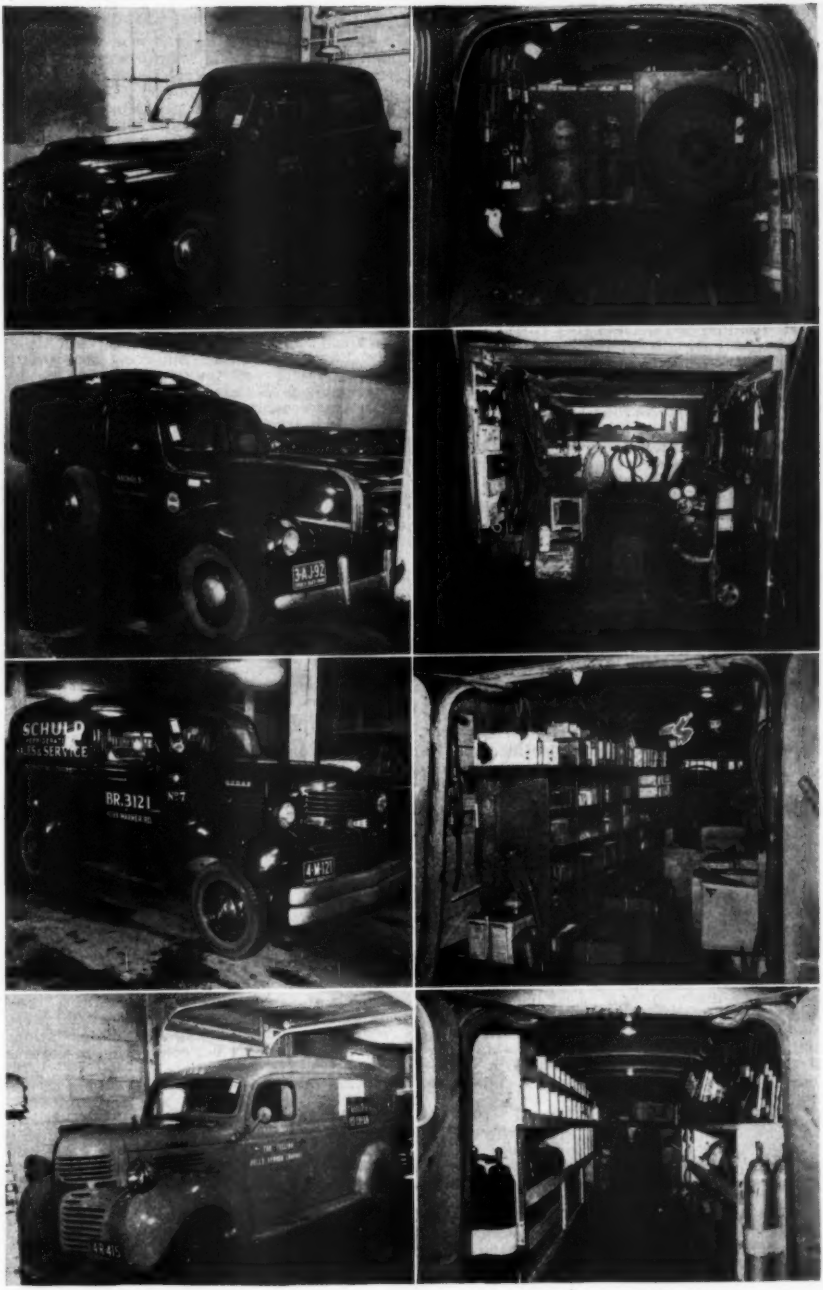
One of the features of the annual convention in Cleveland was a prize-winning service truck display. Pictured on the opposite page are exteriors and interiors of the prize winners and runners-up.

Refrigeration Maintenance Corp. of Cleveland (top picture) won first place in the service truck commercial built class, and Nichols Electrical Equipment Co. of Medinah, Ohio (second picture), won first place in the owner-built division. Runners-up in the contest were Schuld Refrigeration Sales and Service Co., Cleveland, and Telling Belle Vernon Company.


SCHULER
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fire delivery, aided by projected slides, Dr. Walker covered about every possibility for the formation of solids in refrigerating systems. He divided these into two general types of action which may result in the formation of solids. These are (1) chemical reactions, and (2) physical changes or reactions. Sludges formed from chemical reactions, sludges from oils, solids formed by physical changes, effects of moisture and the effects of various other combinations within the refrigerating system were thoroughly discussed with suggestions on servicing and prevention being given.

Dr. Walker also talked on drying agents and drying methods. His slides showed samples of various solids and sludges formed and its effect on screens and other parts of the refrigerating system.

W. Golding of the Ohio Bell Telephone Co., Cleveland, gave a brief talk on the "Bell System Mobile Telephone Service" which, as he stated, would be followed at the end of the meeting with a demonstration of equipment. Mr. Golding said that with the new mobile system the user can look forward to transmission of telephone conversation on quite a comparable basis with the local telephone call everyone is familiar with. The mobile telephone can be used to originate a call to any land based telephone ordinarily called from your home or office. It can also be used to call any other mobile telephone. The average cost, based on the various costs throughout the country, would be about $1.00 per day. He went on further to outline the advantages of such service to the refrigeration service field.

While the test display equipment was being made ready for a demonstration, Albert Sawyer, Refrigerating Engineer of Dole Refrigerating Co., presented his talk on "Truck and Trailer Refrigeration." In his talk on the subject, Mr. Sawyer covered the development of mobile refrigeration, the various methods employed, and some of the engineering problems encountered. He discussed the installation, service and operation of the units and methods of calculating heat loads.

His application data included ice cream and frozen food trucks, ice cube delivery trucks, trucks for fresh meats, vegetables and fruits, and those trucks handling other such commodities. It was the practical type of information that the service group requires.

By this time, Robert Wilcoxen of the Ohio Bell Telephone System, was ready with his mobile equipment and he put on a very interesting demonstration of its use. Several calls were made to land based telephones in the city of Cleveland and one long distance telephone call was made by one of the members to his home. A third call was made to a mobile unit located in a garage in Cleveland. Both incoming and outgoing calls were completed in each case.

Friday evening was the night of the annual banquet held in the Grand Ballroom of the hotel. A very enjoyable chicken dinner was served and the banquet hall was filled to capacity with the delegates and guests. President Allison, on behalf of the Society, presented Past President Clarence Buschkopf, Beaver Dam, Wis., with a past presidents pin. Dancing after the banquet completed the evening.

Saturday Morning, January 24

. The final session of the convention was again opened with an "Information Please" session conducted by Paul Reed and continuing for quite a lengthy period. Upon its completion, Mr. Reed introduced George J. Schuld, Sr., Chairman of the Safety Committee of the International Society, who delivered a very humorous and interesting talk on the subject of safety. Mr. Schuld has spent many years in the study of safety and has made quite a large collection of clippings and descriptions of accidents occurring in the refrigeration industry, and provided sound suggestions for avoiding repetitions of some of the most common accidents.

The subject of "Two and Three Stage Systems" was the next educational feature of the day, discussed by Thomas Lopiccola, Terryville, Conn., Chief Engineer, Refrigeration Div. Bowser, Inc. Mr. Lopiccola began with a brief history of the low temperature refrigeration field, describing some of the early efforts at reaching low temperatures. Building up to the present method of employing two and three stage systems with the multistage type or the cascade system, he discussed the various refrigerants used in these systems, the difficulties encountered, mechanical and engineering troubles, and limitations and uses. Advantages and disadvantages of various systems and methods of liquid and motor control completed a very thorough discussion of this field of refrigeration.

Saturday Afternoon

The final afternoon session was devoted to completion of business matters of the convention. It began with a few observations gathered by President W. W. Allison during his term of office. A report from Willis Stafford, Chairman of the Publicity Committee, followed, in which he outlined the accomplishments of this committee during the past year. Wm. Tierney reported for the Auditing Committee and Wm. Wharton of Oakland, Calif., read the Resolutions Committee report.

Next came the report of the Nominating Committee and as a tribute to the fine work they had done during the long hours of evening meetings held for the purpose of setting up a slate of officers agreeable to the majority of states and chapters, there was only one additional nomination from the floor. The final outcome of the voting was that the slate suggested by the Nominating Committee was accepted by the membership and all officers included on it elected to office.

While the ballots were being collected and counted, miscellaneous announcements were received from the membership and invitations to hold the next annual convention in various states were received.

When the final vote on the election of officers had been tabulated and the announcement of the outcome made, W. W. Allison turned the gavel over to the new President, William Marshall, of Toronto, Ont. Mr. Allison also presented Mr. Marshall with a personal lucite gavel made as a hobby by Wm. Irving of California. President-elect Wm. Marshall offered his thanks to Mr. Allison and then introduced his fellow officers for the coming year, after which the 10th annual convention adjourned.

Ladies Auxiliary Enjoy Diversified Program

By MRS. CECIL VISGER
International Secretary

THE ladies in attendance at the convention were provided for by a separate program of their own, in addition to the various entertainments such as the get-together supper and floor show on Wednesday evening, January 21, and the annual banquet and dance on Friday evening. Arrangements for the ladies' program were made by the Cleveland ladies committee, headed by Mrs. R. D. Hollingsworth, as Chairlady, and including Mrs. Emil Flanik, Mrs. O. B. Herrick, Mrs. Rod O'Flaherty, Mrs. T. W. Way, Mrs. Glenn Keller, Mrs. Paul Spring, Mrs. George Schuld, Sr.,

Mrs. J. L. Driskell
President

Mrs. C. R. Visger
Secretary

Mrs. George Baumgardner, Mrs. Richard Burney, Mrs. R. D. Chown, Mrs. Cecil Harnish, Mrs. W. E. Wright, Mrs. A. M. Fenwick, Mrs. Lawrence Gardella, Mrs. George Lutz, Mrs. Roy McCloskey, Mrs. B. M. Paull, Mrs. James Downs, Mrs. Elmer Wiedwald, Mrs. W. W. Farr, Mrs. Ed. Vadikin, Mrs. Earl Yockey and Mrs. Oren Nichols, Jr. They did a wonderful job of welcoming the visiting ladies and arranging for their entertainment and enjoyment during their stay.

Thursday morning, a "Brunch", similar to Breakfast in Hollywood was the attraction. Bob Ledyard of WHK, Cleveland, interviewed the ladies, passing out Orchids and gifts to—President McCarthy "because she was from his home town," to the youngest grandmother, to the lady who had been married the longest, then to the lady who had been married most recently, then to the lady who traveled the greatest distance. All in all it was quite a gala affair. On Friday there was a luncheon and fashion talk, with living models. The Cleveland hostesses were presented with corsages and compacts. Names were drawn for the nice array of gifts which were donated by the different Auxiliary Chapters.

Business meeting opened at 2 o'clock on January 21st with Mrs. J. L. Driskell, Sergeant-at-Arms, calling the meeting to order. Mrs. R. C. McCarthy, President of the Auxiliary was called upon to address the meeting. She welcomed everyone and introduced the officers. Mrs. H. T. McDermott, wife of the International Secretary of the RSES was presented with an Honorary Membership Certificate. Each delegate introduced herself giving her Chapter affiliation, also told of activities in her own chapter. Mrs. McCarthy presented the Kansas City and Tri-State delegates prizes for the most new members accepted since the last convention. A Nominating Committee, Auditing Committee and Resolutions Committee were appointed and the meeting adjourned until Saturday morning, January 24th.

New Officers

At the opening of the business meeting Saturday morning, Mrs. McCarthy greeted the new guests and extended her thanks and appreciation to all the officers who had worked with her during the year. Four new Auxiliaries were formed during the year, Oil Capitol at Tulsa, Oklahoma; Dayton Chapter, Dayton, Ohio; Long Beach Chapter, Long Beach, Calif.; Virginia Chapter, at Richmond, Va.

International Officers of Ladies Auxiliary

International President Allison of the RSES addressed the ladies and offered a few words of greeting, assuring them they were making definite advances toward a larger representation, calling attention to the fact that California has one Auxiliary and others interested in forming. The Dayton Chapter was presented with their charter, which was accepted by their delegate, Mrs. Delbert Goll. Then after a brief business session, new officers were elected by Unanimous vote: Mrs. J. L. Driskell, President; Mrs. John D. Mendell, 1st Vice-President; Mrs. Einer Hansen, 2nd Vice-President; Mrs. Cecil Visger, Secretary; Mrs. Arnold Henson, Treasurer; Mrs. Henry Fairburn, Sergeant-at-Arms. Board of Directors: Mrs. R. C. McCarthy, Mrs. George Klahn, Mrs. Wm. Bevis, Mrs. Howard Haselwood and Mrs. V. E. Denny.

Immediately following the election, Mrs. McCarthy turned the meeting over to the new officers and the business session continued. Gifts of appreciation were made to Mrs. McCarthy, Mrs. Sackey and Mrs. Andrews for their work as President, Secretary and Treasurer, respectively. Motion was adopted creating a new office, that of Historian. President Driskell to appoint someone versed in the affairs of the Auxiliary to bring the records up to date.

All-Industry Show Reflects "Selling Again" Attitude

THE refrigeration and air conditioning industry, which has just finished its biggest peacetime year, checked latest developments and progress at the industry's greatest trade show held at the Public Auditorium, Cleveland, Ohio, January 26 to 29. About 228 booths containing 178 manufacturers' exhibits occupied approximately 75,000 square feet of floor space at the show sponsored by the Refrigeration Equipment Manufacturers Association.

Associations holding their annual meetings in Cleveland in conjunction with the show were the Refrigeration Service Engineers Society, whose meetings were held in advance of the show, the National Association of Refrigeration Contractors; Refrigeration Equipment Wholesalers Association; and National Commercial Refrigerator Sales Association.

All-Industry Exhibition attendance registration figures, released by the Refrigeration Equipment Manufacturers Assn. for the exhibition, show that the total attendance was 9,563. Breakdown indicated that the attendance by industry groups was as folows: contractors 958; dealers 1,195; distributors 558; manufacturers 3,759; service engineers 1,750; students 294; wholesalers 872; press and miscellaneous 174. Fifteen foreign countries were represented among the registrants.

Edward M. Flannery, REMA president, cut the ribbon that officially opened the show the morning of January 26. In a statement during the opening ceremonies, Mr. Flannery pointed out that despite labor troubles and shortages of essential parts and materials, the refrigeration and air conditioning industry in 1947 chalked up its most productive peacetime year. "The industry faces a potential market of staggering proportions," he said. "Consumer surveys and government reports indicate, for example, that during the next few years there will be a demand for nearly 11,500,000 domestic refrigerators. Even with production climbing above the 1947 level, the demand for refrigerators probably will stay ahead of production for at least the next three years."

The All-Industry Show was not opened to the general public at any time, but was confined exclusively to refrigeration service engineers, contractors, dealers, wholesalers and other industry groups. An addition to the program this year was the All-Industry banquet held on the arena floor of the Auditorium, January 28.

6th REMA Refrigeration and Air Conditioning Exhibition to be held in Atlantic City, New Jersey November 14, 1949

There were many varied opinions from exhibitors on the tangible results of the show. The general expression was that it was tremendously successful from the standpoint of a sales presentation of refrigeration and air conditioning equipment. In this respect it was the best show yet.

Several exhibitors reported spectacular sales and one exhibitor stated that the first two days produced more activity than the entire period of last year's show. The demand for products was indicated by the fact that many exhibitors sold their exhibit models long before the show had ended.

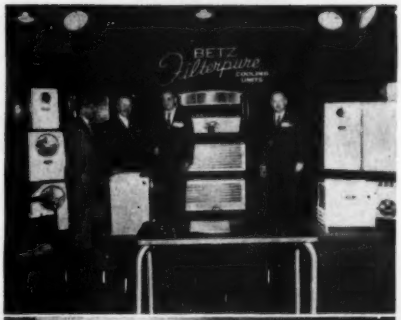
While there were few completely new products being displayed, one could not help but be impressed with the efforts that had been made during the past year to improve existing products to a higher degree of usefulness to the user.

Photos of some of the booths and a description of the products displayed is contained in the following pages.

GENERAL ELECTRIC CO., Schenectady, N. Y., devoted the major part of their display booth to motors, controls, transformers and switches, but the central attraction which drew a great amount of interest from all visitors, was a demonstration of the company's new Halogen Leak Detector. This detector being demonstrated by the young lady in the picture of the booth, is described elsewhere in this issue.

PENN ELECTRIC SWITCH CO., Goshen, Ind., featured their line of "270" controls which were introduced at the previous All-Industry Show. According to the manufacturer, these controls are the first and only controls on the market incorporating a two-pole construction. In addition, these controls feature a direct reading scale which eliminates addition or subtraction in setting the cut-in and cut-out points. In other words, the cut-in and cut-out points are set directly with the simple "sight set" calibrated scale.

BETZ CORPORATION, Hammond, Ind., exhibited their complete line of forced convection cooling units, including a wide variety of coils covering practically the entire commercial refrigeration field. Included in the general line were several new products such as low temperature coils with automatic defrosting, a combination unit for reach-ins embodying an ice cube maker, low temperature storage compartment and refrigeration coil, a half round ceiling unit for walk-ins, a unit specifically designed for open vegetable and dairy cases, and a unit for closed type display cases.



WABASH MFG. CO., Chicago, Ill., displayed their complete line of refrigeration parts and accessories, including their driers, Poronze filters, capillary tubes, strainers, and other items.

KRAMER TRENTON CO., Trenton 5, N. J., (pictured on next page) showed a number of new products, as well as a new coil design for blast type surface and gravity coils using aluminum fin and copper tube, in their booth. In the new coil design, a new method of deep drawing the fin collar has been developed, giving a large area of fin in contact with the tube and a stronger bond between fin and tube, resulting in higher heat transfer values. Finned material, being work hardened, also is said to have greater

New modern home of UNITED COMMERCIAL SALES CO., Los Angeles. Note the spacious loading platform and convenient paved parking space, with store entrance handy to the parking lot.

Your Refrigeration Equipment Wholesaler

. . . Provides an "INSIDE TRACK" to Your Supply Sources

Your Refrigeration Wholesaler holds a unique position in your progressive industry. Practically, he is the conscientious local representative of hundreds of manufacturers. Yet he enjoys the unusual privilege of being able to choose his products solely on the basis of their merit—their [illegible] display and stock [illegible] performance-proven equipment, parts, supplies and tools—the kind you can depend upon to simplify your service problems and to protect and improve your reputation for

Indirect lighting, modern display fixtures, refrigerated meat display counters and racks and a long sales counter combine to make this self-service stock shelves make this new store of the United Commercial Food Co. one of the inviting and efficient in the Los Angeles area.

Yet he enjoys the unusual privilege of being able to choose his products solely on the basis of their merit—their profitable dependability—display and stock only performance-proven equipment, parts, supplies and tools—the kind you can depend upon to simplify your service problems and to protect and improve your reputation for quality workmanship among your own customers. He knows most Refrigeration Manufacturers intimately, contacts them daily, enjoys their confidence, and merits prompt and careful service from all of them—to your benefit.

resistance to fin distortion in handling and transportation.

A new line of commercial cubers has been developed, using copper sleeves with copper tube fused to the underside of the sleeve. A horseshoe booster type coil has been developed with a continuous fin around three sides of the cuber. Deluxe cuber for applications in reach-ins up to 25 cu. ft. also was shown.

Extra large Coolmaster units (ceiling mounted product coolers) for applications up to 5 tons for a single unit, a double discharge panel unit for long fixtures such as beverage coolers, and improved models of the standard Radial and Curvette unit coolers also were featured in the Kramer line. A number of improvements also have been added to the Thermobank, making it possible to operate a low temperature system completely automatic throughout the year, without manual changeover from summer to winter operation .

SANITARY REFRIGERATOR CO., Fond du Lac, Wis., has returned to the farm freezer market and shown in the right foreground of their display booth is the Quicfrez "Trizone" combination freezer and refrigerator which has won tremendous rural acceptance since its first appearance on showroom floors in 1941. Now in its new 1948 dress and engineering improvements it has again taken its place in the farm freezer market. In the rear left of the booth is shown the Quicfrez 12.5 cu. ft. upright freezer, and in the rear center is the chest-type Quicfreze. The unit seen at the right of the photograph behind Quicfrez Trizone, is Sanitary's 4 cu. ft. trailer electric refrigerator made for building into the cabinet structure of house trailers and apartment size kitchens.

LEHIGH FOUNDRIES, INC., Easton, Pa., exhibited their complete line of Blu-Cold heavy duty air cooled units, package types units and water cooled units. A background of wintery scenes provided the atmosphere and theme of the display.

CUTLER-HAMMER, INC., Milwaukee, Wis., showed representative items from their complete line of refrigeration controls, including custom built, universal replacement and exact replacement items, semi-commercial controls, commercial controls, motor controls, safety

TESTED...

End flange check. Inspector is measuring depth of lubricating pump plunger slot.

TESTED...

3000 kilogram pressure tests hardness of crankshaft. Impression's diameter is then measured microscopically.

TESTED...

to back your recommendation of GENERAL ELECTRIC CONDENSING UNITS

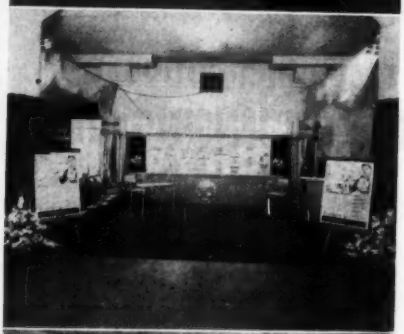
Why does General Electric submit its equipment to such expensive, thoroughgoing tests?

Because G. E. wants the double-backed prestige of having not only the best *line* of products, but the knowledge that each product has received the best attention G. E. knows how to give.

Thus do we *back up* our own selling features: the new CW line includes units from ⅙ hp to ½ hp . . . 8 air cooled and 4 water cooled models . . . integrated in 3 basic compressor sizes, many parts of which are themselves interchangeable. Even the advantages to you of easier selection, wide capacity range, and lower parts stock have paved the way for newer, stricter tests . . . giving you greater dependability than ever before. The pride G. E. takes in its quality control is your assurance of equipment whose quality is truly beyond the ordinary . . . *and whose quality is consistant! General Electric Company, Air Conditioning Dept.*, Section R-8123, Bloomfield, N. J.

GENERAL ELECTRIC

Refrigeration Equipment



switches and multi-breakers. The feature item in the booth was a jumbo size model of their universal replacement unit, arranged to demonstrate the many adjustable features which make it quickly applicable to a large majority of domestic refrigerators.

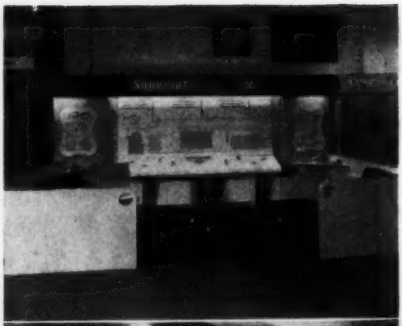
WHITE-RODGERS ELECTRIC CO., St. Louis, Mo., featured in separate display panels their wall thermostats, pressure controls, temperature controls, and their automatic defrosting control. In smaller panels of the booth were the various shapes and types of hydraulic action elements used to power these controls.

IMPERIAL BRASS MANUFACTURING CO., Chicago, Ill., displayed the Imperial DiaSeal Valve, a new Hi-Duty flaring tool and an improved Torpedo drier. The DiaSeal valve was dramatized by means of a giant revolving model which had one side cut away to show the working parts by means of an illuminated translite. The new Hi-Duty flaring tool was demonstrated in the booth. Other products shown were triple-seal flared tube fittings, hi-side float, liquid indicator, charging lines, charging and testing unit, service valve kit for hermetic units and tools for cutting, flaring, bending, pinch-off and swedging.

ANSUL CHEMICAL CO., Marinette, Wis. Ansul's display was based on the theme "Solids in Refrigeration Systems" which is a subject of extreme interest to all refrigeration men. The display showed in a simplified, easy to understand manner, what causes solids to form in refrigeration systems, how to prevent them and how to service machines containing them. Samples and pictures added potential interest to the presentation. This display tied in directly with the educational talk delivered by Dr. W. O. Walker before the 10th annual meeting of the Refrigeration Service Engineers Society held just previous to the show.

Appealing to the lighter side, the booth again contained the ever popular free "26 game" and visitors were invited to try their luck at winning cigarettes.

SERVEL, INC., Evansville, Ind., displayed their complete line of condensing units from 1/4 to 5 horsepower. These were divided into two groups of open type units and hermetic units. Cutaway models of the open type units and hermetic units showed construction features



of the compressors and a glass evaporator operated by a Supermetic unit, provided a central attraction.

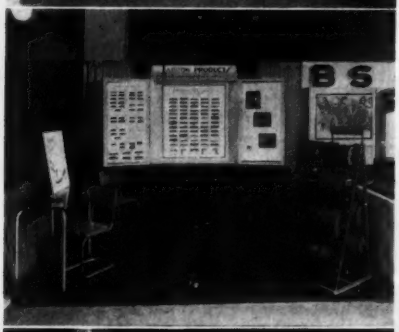
SUPERIOR VALVE & FITTINGS CO., Pittsburgh, Pa., booth centered around a large paneled schematic view of a multi-coiled refrigerating system in which the valves, fittings and accessories manufactured by the company were highlighted. A representative group of all the products made by the company were on display.

ALCO VALVE CO., St. Louis, Mo., featured in their booth two new control devices in actual operation. The new 3-way and 4-way "change-over" valves for automatic control of reverse-cycle refrigeration were shown in operation in a miniature heat pump system. The Alco type *732* snap-action suction valve or regulator, designed for close temperature control without the usual wiring or accessories, was exhibited in operation in a two-temperature case. It is used on display cases, vegetable storage, beverage and water coolers, soda fountains, and many other two-temperature applications.

In addition to these features, the display included Alco's complete line of engineered refrigerant controls: Thermo expansion valves, Multi-Outlet Thermo valves, solenoid valves for many uses, evaporator pressure regulators, high pressure float valves, float switches, and line strainers. A continuously changing slide projector showed color photos of outstanding Alco valve installations.

STANDARD REFRIGERATION CO., Chicago, Ill., displayed their complete line of household domestic refrigerator evaporators, their new baseboard heating radiators, counterflow water cooled condensers and their new large tonnage three-tubes-within-a-tube water cooled condensers. These large condensers created considerable interest at the show, as did the household evaporator line which is very popular in the replacement field.

CHICAGO SEAL CO., Chicago, Ill. On two large background panels, this company displayed on one, their complete line of replacement seals, and on the other, a complete line of new and replacement valve plates and valve inserts. A slow moving cutaway model of a compressor demonstrated the use of the replacement seal and the manner in which it operated.



LYNCH CORPORATION, Toledo, Ohio. The close coupling of their heavy duty condensing units was featured in their display. The table shows the dimensions of each.

	HA-2	HA-3	HA-5	HA-7
Length	21¼"	21¼"	26"	26"
Width	19⅛"	19⅛"	21⅛"	22⅛"
Height	15⅞"	15⅞"	18¼"	19⅛"

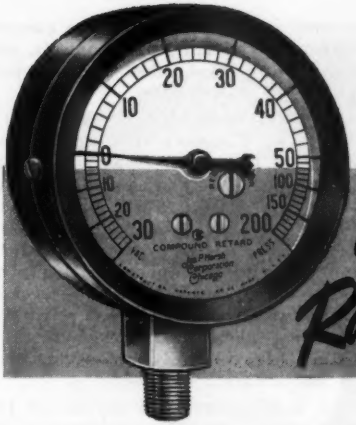
Other improvements announced in their line are: Improved capacities, efficiencies, quietness, serviceability; new cylinder mounting reed suction valves; improved volumetric efficiencies; reduced reexpansion losses; increased condenser capacity on ½ and ¾ hp. units; strainers installed under suction service valves; new Penn controls; fusible plugs on all units; high pressure relief valves optional; and larger suction service valve openings on water cooled units.

JARROW PRODUCTS, Chicago, Ill., featured new gaskets that have been added for replacement on late model refrigerators. They also showed their door gasket corner notcher which received much favorable comment.

THE EBCO MANUFACTURING CO., Columbus, Ohio, displayed special glass panel cutaway demonstrators of the 10 gallon size Oasis Electric Water Cooler. These specially-built water coolers permitted all visitors to see how the Oasis Electric Water Coolers are constructed. New models on display included the Model OP-10W which, according to the manufacturer, is the only electric water cooler with a water cooled condenser especially designed for installation in foundaries, steel mills, pulp and textile mills.

Also shown in the exhibit were the standard water coolers with hermetically sealed condensing units. These included the OB-4 bottle type and the OP-10 and OP-20B pressure bubbler coolers. One of the interesting features of the booth was the water cooler shown in action on the left-hand side of the picture. This 10-gallon cooler was connected and furnished a cool, refreshing drink of water to an average of one visitor per minute.

E. I. DU PONT DE NEMOURS CO., Wilmington, Del. Under the heading "Better things for better living — through chemistry," the Du Pont display



Closer reading in the Normal Range

—when you use the new MARSH Compound Retard Gauge

One more shining example of a Marsh refrigeration instrument particularly well fitted to its job is this new Compound Retard Gauge. It provides a full range of both vacuum and pressure indication for systems using sulphur dioxide, methyl chloride, Freon and other refrigerants that will not deteriorate brass, but its retarded movement permits easy, close reading in the important range from zero to 50 lbs.

Produced in a handsome, business-like black steel case with pyralin crystal, this compound retard gauge is one more welcome addition to the Marsh line of quality refrigeration instruments — standard pressure and compound gauges, ammonia gauges, corresponding pressure-temperature gauges, remote reading thermometers and the popular new Marsh "Serviceman" line in single and 4-scale types as briefly described opposite.

All Marsh refrigeration instruments are available with the "Recalibrator"—quickest and best way to correct a gauge or thermometer that has been knocked out of adjustment. Ask for new catalog sheets covering the Marsh line.

JAS. P. MARSH CORPORATION
DEPT. Q, SKOKIE, ILLINOIS

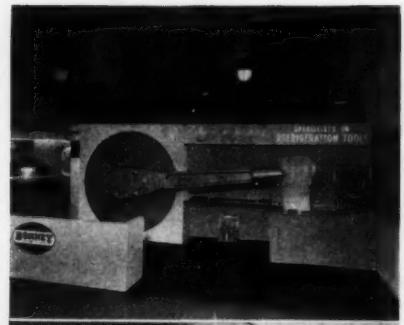
New 4-scale "Serviceman"

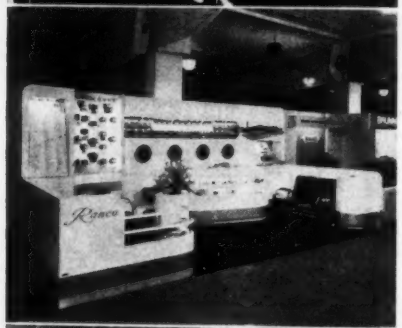
An all-purpose remote-reading serviceman's thermometer. Embodies all the features of the single scale "Serviceman" (below). In addition, shows equivalent pressures for Freon, sulphur dioxide, and methyl chloride.

Standard Serviceman

Checks them to 30 below. Has five feet of tubing, neatly concealed in case when not in use, slender enough to pass between gasket and jamb of closed refrigerator door. Large scale production has made it possible to *reduce its price*, making it a still more remarkable value.

MARSH BUY FROM YOUR WHOLESALER
Refrigeration Instruments





featured products made by the company such as refrigerants, pest controls, plastics, neoprene and other chemical products.

BONNEY FORGE & TOOL WORKS, Allentown, Pa., as the main feature of their exhibit had a large hand which moved up and down operating a large reversible ratchet. The ratchet turned a 7 foot disc on which were mounted over 200 hand tools. During the show, Bonney announced many new refrigeration tools, such as a reversible ratchet, small hack saw, offset screw drivers, smal plier set, clutch head screw drivers, hexagonal keys, a bushing driver set and a flaring tool.

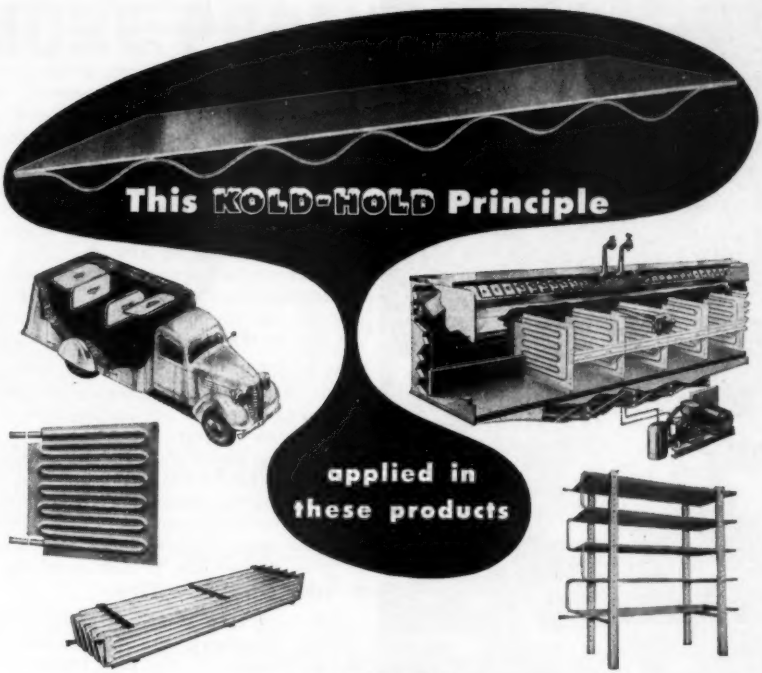
To help refrigeration jobbers in their sales efforts, Bonney introduced a jobbers' salesman sample board. This board is designed to be carried by jobbers' salesmen on their round of calls and shows samples of the various popular refrigeration tools in the Bonney line. The back of each board is constructed to hold eight Bonney pocket size catalogs for distribution to servicemen. The boards are 16"x22" and are equipped with an easy-grip handle for carrying.

PEERLESS OF AMERICA, Chicago, Ill., displayed their standard line of coils, cube makers, unit coolers, cold plates, gun coolers and other well known products of the company. Featured at the show was the new Dome Cooler, Cascade Cooler and the unit cooler which was introduced at the show.

RANCO, INC., Columbus, Ohio. Featured in a central panel were all the various types of cold controls made for various original equipment and the types made for replacement. A separate panel displayed commercial controls and lighted in other sections were parts and assemblies of the controls.

COPELAND REFRIGERATION CORP., Sidney, Ohio, showed cutaway models of open type and Copelametic compressors. The entire line was covered —from 1/6 hp. to 7-½ hp. in the open type, and from 1/20 hp. to ¾ hp. in the Copelametic type. The compressors came into view one at a time by automatic lighting back of transparent mirrors.

KINETIC CHEMICALS, INC., Wilmington, Del.. (pictured on next page).— The theme of this company's exhibit was



means PROFITS for you

KOLD-HOLD "Quick Action" Serpentine Plates have a multitude of applications . . . all profitable to the user. Used to equip new installations, or to convert outdated ones . . . used separately, in banks, plate stands, or as cabinet liners, they assure you the following advantages:

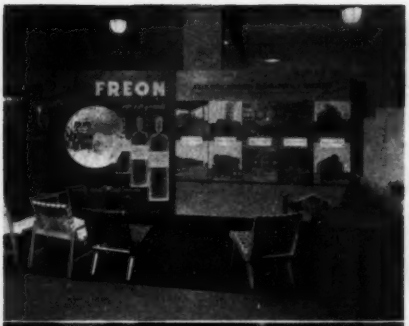
1. Easy installation.
2. Maximum prime surface.
3. Highest rate of plate heat acceptance.
4. No possibility of short circuiting the flow of refrigerant, which flows in one continuous pass from inlet to outlet.
5. Oil logging positively prevented.
6. Minimum pressure drop.
7. Tested under pressure.
8. An appreciably higher "K" factor.
9. Thoroughly cleaned and dehydrated.

KOLD-HOLD

Jobbers in Principal Cities

PROCESSING TRANSPORTATION STORAGE
protects every step of the way

KOLD-HOLD MANUFACTURING CO., 502 E. Hazel St., Lansing 4, Michigan



"More 'Freon' Fluorine Refrigerants in 1948," anticipating added production from their new plant at East Chicago, Ind., scheduled to get into operation this spring. Kinetic officials warned, however, that more "Freon-12" cannot be shipped unless more shipping containers become available.

The raw materials situation, although perplexing, appears now not to be critical, it is believed, but the shortage in empty clinders is so alarming that, unless corrected immediately, production and distribution face drastic cuts. Return of empties has dropped far below the danger line in the past four months.

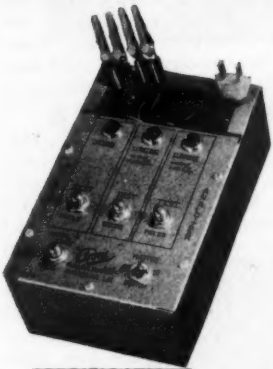
WAGNER ELECTRIC CORP., St. Louis, Mo., display consisted mainly of a dynamometer on which the output of motors can be tested. A ¾ horsepower Wagner repulsion-start induction motor, built in the new NEMA 66 frame size, was mounted on the dynamometer, and actual tests of its output could be made by anyone interested. The ¾ horsepower motor in this frame size is not available at present.

THE DAVISON CHEMICAL CORP., Baltimore, Md., booth dealt with the advantages in the new Davison PA 100 Refrigeration Silica Gel, claimed by the manufacturer, which include instant clean-up in either liquid or vapor lines; high capacity is assured by the enormous pore surface; removes acids and corrosive compounds as well as moisture, not by neutralization but by actual adsorption; will not react with refrigerants, oil, metals or other substances encountered in refrigerating systems; will not dust or deliquesce.

UNIVERSAL COOLER DIV., International Detrola Corp., Marion, Ohio, displayed their new household system incorporating the niversal hermetic unit, shown for the first time at the All-Industry show. This unit is available in two-tray evaporator sizes for 4 to 6 cu. ft. refrigerators, and a four-tray evaporator size for the 6 to 9 cu. ft. refrigerators. They are to be sold to manufacturers constructing their own cabinets who will assemble the units in them.

Another feature of the Universal display was the new beverage cooler system which incorporates the hermetically sealed unit.

MORE PROFIT—LESS TIME



ANALYZE HERMETICS WITHOUT GUESSWORK

Let Annie Do It!

HERE IS A HERMETIC UNIT ANALYZER which, in a matter of seconds, will positively indicate the nature of any electrical defect.

SPECIFICATIONS
Size: 3" x 5" x 8"
Weight: 1¾ pounds
Price: **$16.50**

Annie

- REVERSES DIRECTION OF RUN
- PROVIDES MANUAL STARTING
- INDICATES OPEN OR GROUNDED FIELDS
- RELEASES STUCK OR FROZEN UNITS—Stuck units can frequently be freed by reversing the running direction.

ACCURATE—You can estimate closely without fear of having to take a loss

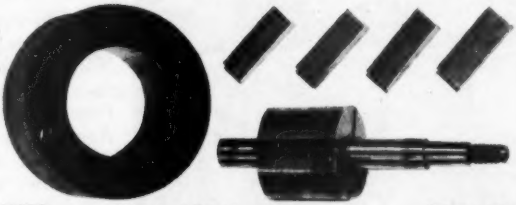
A "must" in any repair kit. Be sure you have it. Don't be embarrassed by your customer asking: "How do you know?"

COLDSPOT REPLACEMENT COMPRESSOR PARTS . . .

A complete set of matched parts ready to assemble into the original housing—designed to fit all Coldspot compressors having 15/32 inch shafts.

SPECIFICATIONS
All wearing surfaces are tool-hard.
Available in 3 sizes—
1" — 1¼" — 1½"

MATCHED SET INCLUDES:
1—Rotor
4—Vanes
1—Cylinder

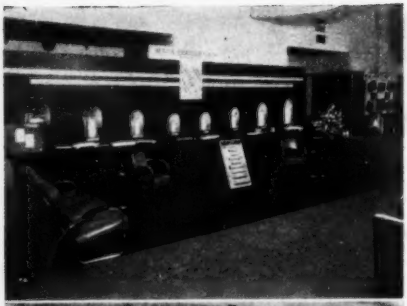


SOLD THROUGH LEADING WHOLESALERS. ORDER FROM YOUR REGULAR SUPPLIER, OR SEND DIRECT INCLUDING HIS NAME.

Matched Set Each **$14.50** Lots of 3, each **$13.80**

MECHANICAL ENTERPRISES DEPARTMENT 36

4856 LANKERSHIM BLVD. NORTH HOLLYWOOD, CALIF.



HEAT-X-CHANGER CO., Brewster, N. Y.—There was considerable interest in all phases of liquid cooling shown by the many refrigeration service engineers who visited this booth, according to the manufacturer. Water coolers, soda fountain coolers, beer coolers, heat exchangers, and industrial and process coolers all came in for their share of interest.

AUTOMATIC PRODUCTS CO., Milwaukee, Wis., introduced three new valves to the refrigeration industry—the model 65 water regulating valve, the model 304 automatic expansion valve and the model 234 refrigerant check valve. The model 65 regulating valve is a small-sized addition to the AP line of water regulating valves. Its operating pressure ranges from 65 psi to 180 psi. The exhibit included a plastic model of this new valve which showed the inside construction and attracted a great deal of interest. A working model which indicated the new valve's positive shutoff, was also included in the exhibit.

SCHNACKE, INC., Evansville, Ind., exhibited representative models of their line of compressors ranging from 5 to 50 horsepower, and condensing units from 5 to 25 horsepower. A cutaway section of the cylinder body was mounted in the background to show the manner in which the refrigerant gas circulates around and cools the cylinder sleeve.

Also in the background display, complementing the fact of greater compressor capacity and "plus efficiency" due to this feature, compressor durability was emphasized by calling attention to the serviceability of replaceable and interchangeable parts.

VIRGINIA SMELTING CO., West Norfolk, Va.—Visitors to this booth had the opportunity of seeing Pete Boyle, famed artist and cartoonist, in action. About 100 portraits of visitors were made during the show, some of which are displayed in the picture of the booth.

Service engineers were attracted by the demonstration of a new type of leak detector—a slow burning paper which changes color upon coming in contact with leaking refrigerant. The refrigerants manufactured by Virginia Smelting Co. were of course the main feature of the exhibit.

REWA Holds 13th Annual Meeting

HAROLD G. STERN
President

H. W. HOLT
Vice-President

F. R. POND
Secretary

JACK GLASS
Treasurer

THE 13th annual meeting of the Refrigeration Equipment Wholesalers Association was held in the Statler Hotel, January 27. The meeting comprised two sessions, morning and afternoon, with a luncheon and annual banquet. 179 wholesalers attended the meetings presided over by President G. J. Roche, and 220 members, wives and guests were in attendance at the banquet. During the morning session, reports from the President, Treasurer, Finance Committee, Manufacturers Relations Committee and Trade Relations Committee were presented.

F. K. Zimmerman, Comptroller of Lynch Mfg. Co., presented an interesting paper, "Credit from the Manufacturers Point of View," followed with a talk by T. I. Glou on "Wholesalers Merchandising Programs in 1948." The closing talk at the morning session was by Past president H. R. McCombs who urged member cooperation in conducting future surveys to provide factual information for the members and forceful ammunition for the committees when dealing with the industry groups in behalf of member wholesalers.

A survey form was passed out to all members in attendance to get information on the kind of information and type of surveys most needed. Many of these forms were filled out by those attending the meeting. These will be analyzed in the near future to get up a survey program for 1948 under the newly appointed survey committee, headed by Mr. McCombs as Chairman.

Three foreign wholesalers were in attendance at the meeting. Two of them representing companies who are REWA members, were Eric E. Ebeling of F. C. Lovelock, Ltd., Sydney, Australia, and Milton Hernandez, Jr. of Refrigeracion Y Products Industriales, Mexico City, Mexico. The other visitor was H. E. Vollenweider of H. E. Vollenwaider, Inc., Kempten-Zurich, Switzerland.

REWA OFFICERS AND DIRECTORS

H. G. Stern, *President*, Region #11
H. W. Holt, *Vice-President*, Region #5
F. R. Pond, *Secretary*, Region #7
J. P. Glass, *Treasurer*, Region #6
G. J. Roche, *Im. Past Pres.*, Region #3

Directors

B. V. Blaesr, Region #2; N. W. Edwards, Region #9; C. W. Eskridge, Region #4; E. C. Marsden, Region #1; J. M. Mideke, Region #8; J. D. Ross, Region #10 (Canada); R. E. Warwick, Region #12.

The afternoon session opened with a talk by W. W. Farr, President of NARC in which he expressed a wish for close future cooperation between REWA and NARC. This talk was followed by a paper prepared by F. V. Wilson on credit problems confronting wholesalers in 1948 which was read by Director J. M. Mideke in the absence of Mr. Wilson. New officers were elected during the afternoon session.

During the banquet, Retiring President Roche was presented with a plaque of appreciation by newly elected President H. G. Stern. The banquet officially closed the association's annual meeting.

The following morning, Wednesday, Regions 3, 4, 5, 6, 7, 8 and 12 held meetings at the Statler. The association membership now consists of 180 members with 120 branches, a total of 300 stores.

NARC Holds 2nd Annual Meeting

E. S. WRIGHT
President

H. E. WHEELER
1st Vice-President

J. H. LESSARD
2nd Vice-President

RALPH LAMPIE
Sergeant-at-Arms

THE National Association of Refrigeration Contractors held its 2nd annual meeting in conjunction with the All-Industry Exhibition in Cleveland. The meeting was held in the Allerton Hotel, January 26 and 27, 1948. New officers and directors were elected, code of ethics was approved and a revised Constitution adopted. No action, however, has been taken on the licensing code up for consideration.

N. EDELSTEIN
Recording Sec.

A. M. PALEN
Treasurer

Two morning business sessions were held in addition to a press luncheon with representatives of the trade journals as guests. Speakers during the morning sessions were Zed Jones of San Francisco; Dolph Jansen, Jr. of Fuller & Smith & Ross; George Roche of REMA; George S. Jones, Jr. of REMA; Art Carney of Seattle, Wash.; and E. S. Wright of Youngstown, Ohio.

In President W. W. Farr's annual report delivered during the first business session, he complimented the Board of Directors for the work they had accomplished during the year and for the keen interest they had taken in their association. He reported considerable headway in the Trade Relations work during the year and expressed the opinion that the cooperation received from the Relations Committee of REMA and REWA had been very gratifying.

NARC OFFICERS AND DIRECTORS

E. S. Wright, Youngstown, O., *President.*
H. E. Wheeler, Chicago, Ill., *1st Vice-President.*
J. H. Lessard, Seattle, Wash., *2nd Vice-President.*
A. M. Palen, St. Paul, Minn., *Treasurer.*
Nathan Edelstein, New York, N. Y., *Recording Secretary.*
Ralph Lampie, Richmond, Va., *Sergeant-at-Arms.*
J. J. Helminak, Cleveland, O., *Executive Vice-President.*

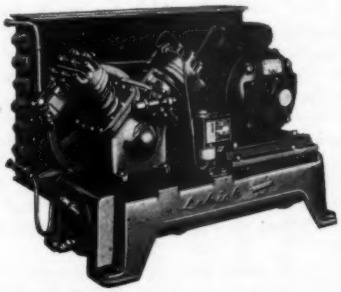
Directors

W. W. Farr, Cleveland, O., Im. Past Pres.; W. L. Drake, Indianapolis, Ind.; James E. Perry, Detroit, Mich.; C. R. Faulkner, Longview, Tex.; Lee Shirar, San Francisco, Cal.; F. J. Zoppel, Columbus, Ohio.

"Our first set of statistics on contractors," he said, "were obtained, summarized, and released. Sales and service volume, kinds of business transacted, wage rates, number of employees, and overhead ratios were included. One of the most significant facts indicated was an annual buying power of one hundred sixty million dollars by members of NARC.

"Many special services have been available to members throughout the year by

Lehigh
BLU-COLD
COMMERCIAL REFRIGERATION



"YOU ARE THE LAST WORD"

SAYS THE LEHIGH TEAM

When the service man says it's good — it must be good. Because he is the one man who looks in back of the fancy finish to see what makes a unit tick.

The biggest compliment paid to Lehigh BLU-COLD at the convention was the statement of one service man who said, "Mister, what I like about BLU-COLD is that the men who make 'em think of me, too! I like what's in them — and they are a pipe to service." Thanks, Pal!

Lehigh BLU-COLD

HEAVY DUTY CONDENSING UNITS

Manufactured By

Lehigh Manufacturing Co.

Plant—LANCASTER, PENNA.

the national office. We have compiled and released some information on operating forms, particularly on maintenance and service contracts, in which quite a few members have expressed interest."

In the balance of his report he touched on the work of the association in broadening its membership from a total of 15 local associations a year ago, to 23 at this time; their efforts in making clearer lines of demarcation between the overlapping trades such as plumbing, steam fitting, heating and sheet metal, etc.; the problem of manufacturers' warranties which in all cases are not uniform and are difficult to pass on to the consumer; the high rate of failure in refrigeration parts and components due to poor inspection and other causes; the association's activities in the wage-hour laws; and many other activities of a similar nature affecting the welfare of the individual members.

In closing, Mr. Farr thanked the officers and members for their sincere support during his term of office and stated that he sees a great future for the association. "There is much to be done," he said, "and among our ranks are many members with the opportunity and desire to see that the job is done."

* * * *

CHICAGO CONTRACTORS ELECT NEW OFFICERS

H. E. WHEELER, President of Air Comfort Corp. of Chicago, Ill. was elected President of the Refrigeration Contractors Assn. of Chicago. Serving with Mr. Wheeler are: Walter McCarty, McCarty Brothers Equipment Corp., River Forest, Ill., *Vice-President;* George T. Howe, Accurate Electric Refrigeration Service, Chicago, Ill., *Secretary-Treasurer;* and Directors Harvey O. Miller, Murphy & Miller, Inc., Chicago, Ill.; Albert G. Weil, Refrigeration Maintenance Corp., Chicago, Ill.; Lawrence Sundberg, C. E. Sunberg Co., Chicago, Ill.; Alphonse Gerat, A. G. Refrigeration Sales and Service, Chicago, Ill.; T. J. Reedy, North Town Refrigeration Corp., Chicago, Ill.; and Theo. C. Johnsen, Johnsen Refrigeration Co., Chicago, Ill.

As part of an expanded program for 1948 it was also announced that the association had hired A. D. Walters as Executive Secretary, and retained the firm of O'Keefe and Walters for industrial relations counsel.

The Beer Barrel Hazard

By PAUL SPRING*

NO DOUBT you have all heard the Beer Barrel Polka—that song that indicated a gathering around the barrel for joyous entertainment.

Did you ever consider that tapped barrel a hazard to life and limb? That tapped barrel must be handled with extreme caution, the same caution you would use handling a sensitive explosive. Many a man has had his face scarred, his brow struck a lethal blow, his scalp furrowed or his teeth knocked out. One man had his leg broken.

"What? That innocent looking barrel of clear, palitable, amber fluid?", I hear someone say. Yes, maybe I'm just a realist advising you how to stay out of trouble.

We all know that tapped beer is under pressure—or should be. This pressure will vary from seven to forty-five pounds per square inch normally. To justify my cry of "wolf-wolf" let us consider a barrel under ten pounds pressure. A 5/8" diameter tap rod has a force of over three pounds trying to shoot it out of the barrel. At forty-five pounds this force is 13.8 lbs. How hard can you fire a pea from a pea shooter at less than 3/10 ounce force? Think and compare.

Now let us consider the whole tap assembly attached to a barrel under the same conditions. The average tap is about 2¼" in diameter, or a square inch surface four inches. At ten pounds, a force of 40 pounds is exerted against the tap and at forty-five pounds per sq. in. a force of 180 pounds is trying to tear it loose from its ear locks. Any one of these forces, carelessly freed, can maim or kill a man. Realizing that these conditions do exist, what can you do about it?

Never place your head in line with a tap rod. Keep to one side. Never touch a tap or rod unless you first place the palm of your hand hard down on top of the rod. Never unlock a tap under pressure. Carefully loosen it and relieve the pressure while the locks are still engaged. Be careful—those lock ears may be worn or not properly engaged. A leaking air regulator may allow compressor pressure to creep through to the barrel. Never stand in front of or in line with a beer barrel bung. Change faulty air gauges and regulators. Take no chances. Be Careful—Be Sure—Be Observing—Don't Take Chances. These precautions are better than insurance or the experience.

* Past President Cleveland Chapter RSES.

A scene you may expect to be duplicated—part of the crowd in attendance at the 1947 California State Meeting.

"You Have a Date in '48 in the City By the Golden Gate."

San Francisco makes big preparations for 2nd Annual CARSES Convention and REMA Educational Exhibits April 30th and May 1 and 2, 1948.

INAUGURATING the first of a series of four RSES-REMA jointly sponsored educational conferences and exhibits, the California Association of the Refrigeration Service Engineers Society plans for one of the most important events for the refrigeration service industry ever held on the west coast. Educational conferences and exhibits will be held in the well known Palace Hotel, San Francisco, California.

The holding of this meeting covering a three day period will provide an opportunity for service men, contractors and dealers to get some "down to earth" factual information on the products of leading manufacturers of refrigeration equipment and parts. Much emphasis is placed on the educational displays which will be under the supervision of The Refrigeration Equipment Manufacturers Association. Regulations have been set up so that the displays will fully carry out the objective of the meeting—"promotion through education." Displays will consist of working and cut-away equipment, operating charts and data, servicing and installation information. Exhibits will be manned by the exhibitors service and engineering personnel. They should not be confused with the usual displays to be seen at a "trade or sales" exposition.

Each exhibit will be uniform in size, and will in no way compete with each other from a selling standpoint.

Refrigeration Industry from Western States to Participate

Anyone interested in the refrigeration business in the western states including Washington, Oregon, California, Nevada, Arizona, New Mexico, Colorado, Utah, Idaho, Montana, Wyoming and West Texas, should plan to attend this important meeting. It's an investment in good business. Not frequently is the opportunity offered

HE KNOWS YOU . . . AND YOU KNOW HIM

Your jobber knows your problems, and he knows the goods he sells. He is in a position to help you in many ways.

As a manufacturer of refrigeration products, we know, through experience, that the old fetish "that the middle man makes goods cost more," is absolutely incorrect. We know that through the service he renders, the goods actually reach the buyer at a *lower* cost.

WHY IS THIS A FACT?

As manufacturers, we know that if we sold direct, we would require billing, accounting, and shipping departments 10 to 20 times greater in personnel and equipment than we have at present. Our transportation charges would increase tremendously—our storage space would have to be enlarged. These and many other increased costs would necessarily have to be reflected in the price of the product to you.

YOUR WHOLESALER IS NOW BETTER STOCKED THAN ANY TIME DURING THE LAST 5 OR 6 YEARS, AND HE CAN MAKE SPEEDIER DELIVERY OF YOUR NEEDS.

In the distribution of our goods we have always consistently adhered to the selective wholesaler plan. We sell only sufficient of these in a locality to assure complete coverage of territory and trade. We refer all trade inquiries to the wholesaler.

When you want time-tested performance and built-in quality in refrigeration valves and fittings, use Mueller Brass Co. products and—give your business friend—the wholesaler, a call. ORDER THROUGH HIM.

MUELLER BRASS CO.
PORT HURON, MICHIGAN

to secure direct information on the equipment and component parts you are using in your every day work.

Educational Conferences Sponsored By California Association

The educational conferences of the meeting are sponsored by the California Assn. of the Refrigeration Service Engineers Society, members and non-members alike are invited to participate in the educational and entertainment features. The educational program is so arranged as to permit ample time to visit the exhibits and secure the fullest advantage of the practical information they will provide for every visitor. Over 100 educational exhibits will be on display.

Heading the list of speakers will be H. F. Hildreth, Manager, Refrigeration Specialties Dept., Westinghouse Electric Corp., Springfield, Mass. Mr. Hildreth is vice-president of the Refrigeration Equipment Manufacturers Assn.

H. F. Spoehrer, president of the Sporlan Valve Co., St. Louis, and past president of REMA and D. D. Wile, Chief Engineer, Refrigeration Engineering, Inc., Los Angeles, will also appear on the educational program.

While the California Association is sponsoring the second annual convention, the San Francisco and Oakland chapters are hosts to the meeting and most of the convention details are being handled by local chapter committees. Interesting entertainment features for visiting ladies are being arranged.

Annual Banquet

Highlighting the convention will be the dinner dance in the beautiful garden court of the Palace Hotel on Saturday evening, May 1. This famous room is well known throughout the country for its grandeur and the evening festivities will include "top flight" entertainment.

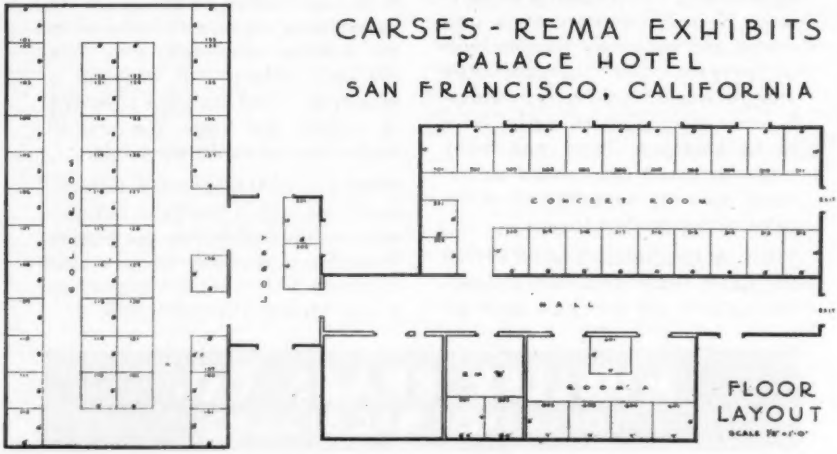
Ladies' Activities

Headquarters for the ladies have been provided in the Royal Suite around which most of their activities will be centered. A fashion show and teas have been arranged by the committee to make their stay in San Francisco a pleasant experience.

Reserve Hotel Accommodations Promptly

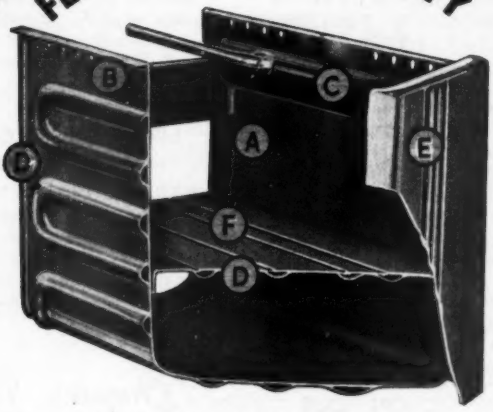
Avoid last minute disappointments by reserving hotel accommodations promptly. A housing bureau has been established by the local committee under the direction of Frank Dwyer, Housing chairman, RSES. Palace Hotel, San Francisco 19, Calif. All room reservations should be sent to the chairman of this committee. Accommodations can be secured at the following hotels through the housing committee at the rates indicated:

Hotel	Single	Double	Twins
MANX, 225 Powell Street	$3.50	$4.50	$6.00
PALACE, Market & New Montgomery		8.00-11.00	9.00-12.00
PLAZA, Post and Stockton Sts.		5.00- 6.00	6.50- 8.50
SIR FRANCIS DRAKE, 450 Powell		8.00	9.00-
STEWART, 353 Geary St.		4.50- 5.00	5.00- 6.00
WHITCOMB, 1231 Market	$6-$7	7.00- 9.00	8.00-10.00



STANDARD *Stainless Steel* EVAPORATORS

FEATURES OF QUALITY



A—Continuous Stainless Steel Construction
B—Universal Mounting Brackets
C—Built-in Accumulator—Adaptable to all Refrigerant Controls
D—Continuous Resistance Welded—With all Joints High Pressure Tested
E—Full Length—Two-Tone Aluminum Door
F—Stainless Steel Shelves—All Refrigerated

SOLD THROUGH LEADING REFRIGERATION WHOLESALERS

Standard Refrigeration Company

The Line of Quality

20 NORTH WACKER DRIVE CHICAGO 6, ILLINOIS

All requests must be accompanied by a deposit check for $5.00 per person or $10.00 per room, made out to the RSES Housing Bureau. Due to the existing crowded conditions hotels cancel unclaimed reservations by 6.00 p.m. Therefore, to avoid any possible misunderstanding, the deposit holds the room on your arrival day—whatever the hour. Bring canceled deposit check or hotel confirmation as proof of reservation.

All reservatins must be cleared through this Housing Bureau. All requests must give definite date and approximate hour of arrival as well as departure, also names and addresses of *all* persons who will occupy rooms requested. ALL RESERVATIONS WILL BE CONFIRMED IF REQUEST IS RECEIVED NOT LATER THAN APRIL 20, 1948.

The convention committee is headed by David Fagg, Oakland, as general convention chairmen; W. E. Wharton, Oakland, Coordinating chairman; C. L. Rusten, San Francisco, Publicity; R. F. Cooke, San Francisco, General Arrangements; M. B. Willis, San Francisco, Contracts; Frank Dwyer, San Francisco, Housing. All Correspondence to committee chairman should be addressed in care of 2nd Annual Western Educational Exhibit and Conference, Palace Hotel, San Francisco 19, Calif.

* * * *

CHICAGO WEST TOWNS CHAPTER SPONSORS INSPECTION TOUR

CHICAGO West Towns Chapter held a most interesting meeting February 24 at the Sears Roebuck Reclaiming Station in LaGrange, Ill. The meeting, attended by some 30 members and presided over by Chester A. Lee, opened its meeting in one of the rooms of the Sears Roebuck repair station. A short business session was held and then Educational Director Syrl Cartwright introduced Frank Carter and Dan Gott of Detroit Lubricator Company, who gave a talk on various types of expansion valves and their operating characteristics. The talk was illustrated with slides and occupied quite some time, then was followed by a question period.

The members were then treated to a tour through the repair shop of Sears Roebuck where the Coldspot units are rebuilt in an assembly line operation. There was much to be learned from this tour and the manager of the shop, Syrl Cartwright, was most cooperative in providing all possible information about their method of repair. The meeting wound up with reports from the delegates to the convention, a short talk by Floyd Lilley, International Director, and a reading of the adoption of their new Constitution and By-Laws.

* * * *

LEE MILES WITH MUELLER FURNACE

LEE A. MILES recently joined the cooling division of Mueller Furnace Co., Milwaukee, Wis., where he will be in charge of installation and service. He was formerly employed by Nelson Peiss Mfg. Co., in the capacity of service manager.

A member of the Refrigeration Service Engineers Society, Mr. Miles has always taken an active part in the Society's work. He is at present a member of the International Advisory Board.

* * * *

MRS. HERBERT GARTNER PASSES AWAY

HEARTFELT sympathies are extended to Mr. Herbert Gartner, whose wife passed away February 10th. Mrs. Gartner was an Active member of the Ladies Auxiliary of the Twin Cities Chapter. Mrs. Gartner is survived by her husband and three little daughters.

* * * *

Chapter Notes

• BERKSHIRE COUNTY CHAPTER, *Pittsfield, Mass., Feb. 4*—During this meeting a motion was made and seconded that any officer of this chapter who was absent for three consecutive meetings could be removed from office by vote of the members. Messrs. Phelps and Hodgins were appointed to line up speakers for future meetings.

• BLACKHAWK CHAPTER, *Burlington, Iowa, Jan. 5*—The election of officers took place and the following were elected to serve for the coming year: William Hogan, *President;* John Kerby, *Vice-President;* Lawrence Oetken, *Secretary-Treasurer;* Max Marsden, *Sergeant-at-Arms;* and E. R. Anderson, *Chairman, Educational Committee.*

At the February 2nd meeting, E. R. Anderson introduced L. K. Arnold of Iowa State College, who spoke on safety measures in handling refrigerants. This was followed by a talk on electric motors by H. S. McLaughlin of Iowa Electric Motors Co., Des Moines. The entire evening was highly beneficial to those attending.

• BOSTON CHAPTER, *Boston, Mass., Dec. 16*—During the meeting, Everett A. Hixenbaugh, Walter H. Hixenbaugh and George H. Canfield were accepted as active members and Riley H. Wirty as an associate member. Chairman of the Educational Committee, Charles Galli, introduced Mr. Wallstrom of

WHERE TO GET GENUINE UCD PARTS

ALABAMA
Birmingham—Auto Service Co.
Mobile—Harris Supply Co.
Montgomery—Nolin-McInnis, Inc.

ARKANSAS
Little Rock—N. O. Nelson
Little Rock—Refr. & Elec. Sup. Co.

ARIZONA
Phoenix—Arizona Refr. Sup., Inc.

CALIFORNIA
Bakersfield—Devlin-Drew Co.
Fresno—Devlin-Drew Co.
Long Beach—Vans Supply
Los Angeles—Ref. Serv., Inc.
Oakland—Calif. Refr. Co.
Sacramento—Hinshaw Sup. Co.
San Diego—Wright Refr. Service.
San Francisco—Calif. Refr. Co.
San Francisco—Cyclops Iron Wks.
San Francisco—Hinshaw Sup. Co.

COLORADO
Denver—McCombs Refr. Sup.
Pueblo—McCombs Refr. Sup.
Pueblo—N. O. Nelson Co.

CONNECTICUT
Hartford—Marsden & Wasserman, Inc.
New Haven—Resco, Inc.
Norwalk—County Supply

DISTRICT OF COLUMBIA
Washington—Melchior, Armstrong & Dessau of Del., Inc.
Washington—Refr. Sup. Co.

FLORIDA
Ft. Lauderdale—Auto Parts & Eqp.
Jacksonville—Bowen Refr. Sup., Inc.
Jacksonville—Refr. Sup. Corp.
Miami—Berner-Pease, Inc.
Miami—Bowen Refr. Sup.
Miami—Graves Refr. Co.
Orlando—R & R Sup. Co.
Tampa—Bowen Refr. Sup. Inc.
Tampa—Graves Bros. Refr. Sup.

GEORGIA
Atlanta—Bowen Refr. Sup., Inc.
Atlanta—Graves Refr.

ILLINOIS
Chicago—Auto. Ht. & Cool Sup. Co.
Chicago—Chase Refr. Sup. Co.
East St. Louis—Illinois Elec. Wks.
Peoria—Polar Sup. Co.
Springfield—U. S. Elec. Co.

INDIANA
Evansville—Budlock Refr. Sup. Co.
Evansville—F. H. Langsenkamp Co.
Fort Wayne—Budlock Refr. Sup. Co.
Fort Wayne—F.H. Langsenkamp Co.
Indianapolis—F.H. Langsenkamp Co.
South Bend—F. H. Langsenkamp Co.
Terre Haute—Budlock Refr. Sup. Co.

IOWA
Cedar Rapids—Thermal Co., Inc.
Davenport—Republic Elec. Co.
Des Moines—Thermal Co.
Des Moines—White Refr. Sup.
Sioux City—Dennis Refr. Sup.

KANSAS
Wichita—Howard Sup. Co.

KENTUCKY
Louisville—Geo. Dehler, Jr. & Co.
Louisville—F. H. Langsenkamp Co.

LOUISIANA
New Orleans—Enochs Sales Co.
New Orleans—Standard Brass & Mfg. Co.
Shreveport—Standard Brass & Mfg. Co.

MAINE
Portland—Ballard Oil & Equip. Co.

MARYLAND
Baltimore—Roche & Hull Appl. Corp.

MASSACHUSETTS
Boston—Melchior, Armstrong & Dessau of Del., Inc.
Boston—Appliance Engr. Corp.

MICHIGAN
Detroit—J. M. Obero, Inc.
Flint—Lifsey Distr. Co.
Saginaw—J. Geo. Fischer & Sons

MINNESOTA
Duluth—Refr. & Indust. Sup.
Minneapolis—Vincent Brass & Copper
St. Paul—Thermal Co., Inc.

MISSISSIPPI
Jackson—N. O. Nelson Co.

MISSOURI
Cape Girardeau—N. O. Nelson Co.
Jefferson City—N. O. Nelson Co.
Joplin—Joplin Sup. Co.
Kansas City—Forslund Pump & Mach.
St. Louis—Brass & Copper Sales Co.
St. Louis—N. O. Nelson Co.
Springfield—Hoffman Sup. Co.

MONTANA
Billings—Refr. Sup. Co.
Great Falls—Thermal Co., Inc.

NEBRASKA
Lincoln—Wickham Sup. Co.
Omaha—Dennis Refr. Sup.
Omaha—Ruegg Refr. Sup.

NEW JERSEY
Newark—Melchior, Armstrong & Dessau of Del., Inc.
Newark—Tesco Distributors.
Ridgefield—Melchior, Armstrong & Dessau of Del., Inc.

NEW MEXICO
Albuquerque—Refr. Parts & Sup.

NEW YORK
Binghamton—W. A. Case & Son Mfg.
Brooklyn—The Capson Co.
Brooklyn—Melchior, Armstrong & Dessau of Del., Inc.
Buffalo—Root, Neal & Co.
New York City—Aetna Sup. Co.
New York City—Melchior, Armstrong & Dessau of Del., Inc.
New York City—Paramount Elec. Sup.
Rochester—Ontario Metal Sup. Co.
Schenectady—Murray Sup. Co.
Syracuse—Central Serv. Sup. Co.
Syracuse—Melchior, Armstrong & Dessau of Del., Inc.
White Plains—County Seat Sup. Co.

NORTH CAROLINA
Charlotte—Bowen Refr. Sup.
Charlotte—Henry V. Dick & Co.
Greensboro—Hasco, Inc.
Raleigh—Henry V. Dick & Co.
Raleigh—Noland Co., Inc.
Wilmington—S.R.S. Distributors

OHIO
Akron—Akron Refr. Sup.
Cincinnati—Radio & Refr. Sup.
Cleveland—Refr. Sup.
Columbus—Mason Sup. Co.
Dayton—Allied Sup. Co.
Lima—Allied Sup. Co.
Toledo—Heat & Power Eng. Co.
Youngstown—Refr. Sup.

OKLAHOMA
Oklahoma City—Macklanburg Sup. Co., Inc.
Tulsa—Machine Tool & Sup. Co.

OREGON
Portland—Peerless Pacific Co.

PENNSYLVANIA
Allentown—Larson Sup. Co.
Harrisburg—Refr. Sup. Co.
Philadelphia—Melchior, Armstrong & Dessau of Del., Inc.
Philadelphia—Victor Sales & Sup. Co.
Pittsburgh—Jos. Woodwell Co.
Reading—Larson Sup. Co.
Scranton—Central Serv. Sup. Co.

RHODE ISLAND
Providence—R. I. Refr. Sup. Co.

SOUTH CAROLINA
Charleston—Roberts Refr. Sup.
Columbia—Henry V. Dick & Co.
Columbia—Noland Co., Inc.
Greenville—Texwood Mfg. Sales Co.
Spartanburg—Noland Co., Inc.

TENNESSEE—
Chattanoga—Noland Co., Inc.
Chattanooga—Peglar Mach. Co.
Knoxville—Leinart Eng. Co.
Memphis—N. O. Nelson Co.
Memphis—United Refr. Sup. Co.
Nashville—J. B. Thomas Co.
Nashville—Starr Co.

TEXAS
Abilene—Refr. Sup. & Elec.
Austin—N. O. Nelson Co.
Beaumont—N. O. Nelson Co.
Beaumont—Standard Brass Mfg. Co.
Corpus Christi—United Refr. Co.
Dallas—Electromotive Corp.
Dallas—N. O. Nelson Co.
El Paso—Hays Elec. Serv.
Fort Worth—Texas Refr. Sup. Co.
Houston—N. O. Nelson Co.
Houston—Standard Brass Mfg. Co.
Lubbock—Texas Ref'n Sup. Co., Inc
San Antonio—Westbrook Carb. & Elec.
San Antonio—United Refr. Co.
Waco—N. O. Nelson Co.
Wichita Falls—N. O. Nelson Co.

UTAH
Salt Lake City—Flint Distr. Co.
Salt Lake City—N. O. Nelson Co.

VIRGINIA
Newport News—Noland Co., Inc.
Norfolk—Noland Co., Inc.
Richmond—Refr. Sup. Co.
Roanoke—Southern Refr. Corp.

WASHINGTON
Seattle—Refr. Wholesalers, Inc.
Spokane—E. S. Matthews, Inc.

WEST VIRGINIA
Charleston—Refr. & Appl. Pts. Co.

WISCONSIN
Milwaukee—Thermal Co., Inc.

HAWAII
Honolulu—Refr. Serv. & Sup. Co.

UNIVERSAL COOLER

AUTOMATIC REFRIGERATION SINCE 1922 — UNIVERSAL COOLER — 1922—1948 . . . 26 YEARS OF PROGRESS

DIVISION INTERNATIONAL DETROLA CORPORATION

MARION, OHIO • BRANTFORD, ONTARIO

VIEWS OF THE PHILADELPHIA CHAPTER FIRST ANNUAL BANQUET HELD ON JANUARY 16 AT PALUMBO'S CAFE

1—The speakers table. 2—The entire group numbering 76. 3—(Inset) Fred Moores, guest speaker, Chairman Membership Committee, Philadelphia Section, A.S.R.E. 4—Chairman Johnny Locilento and President Bob Keil. 5—"Doc" Ross, guest speaker, Chairman Research Committee Philadelphia Section, A.S.R.E. 6—Charlie Logan, guest speaker, past president, A.S.R.E. The 1948 officers of the Philadelphia Chapter are: Robert H. Keil, President; William Waite, Vice-President; Myron Kreskovsky, Secretary; Jas. J. Keers, Treasurer; and Morris Silves, Segeant-at-Arms.

the General Electric Company, who gave an instructive talk on various types of motors. A question and answer period followed.

• CANTON REGIONAL CHAPTER, *Canton, Ohio, Jan. 20*—This was a combination dinner and business meeting with 36 members present. Three new members were accepted into the chapter—two as junior and one associate member. On the educational program, Brooks Frantz introduced Mr. Halstead of the Halstead Mitchell Co. Mr. Halstead's talk covered the advantages of water cooled condensers over air cooled condensers, and he displayed various cut samples of their products. It was announced that George Schuld would be present at the March meeting and it was proposed to also invite the fire chief, the health department head and a representative from the city council.

• CENTRAL NEW YORK CHAPTER, *Syracuse, N. Y., Jan. 13*—This meeting was held at the Carrier Corporation plant. John F. Chester, Public Relations Director, welcomed the group, then turned the meeting over to Jack Smith of the Engineering Training Department, who gave a very illuminating talk on "Customised" Reciprocating Compressors, using slides to point out various features of the models under discussion. Following this, the meeting was taken on a tour of the plant. The Food Freezer Department interested everyone as they viewed evaporator plates in the making, the leak test under water, the dehydration process and the charging board from which the proper charge of gas and oil are injected into the units. Next came the compressor production lines and then the unit run-in and capacity test, ending with dehydration and oil charge. Messrs. Carter, Lewis and Linden of the company acted as guides.

• CENTRAL PENNSYLVANIA CHAPTER, *Harrisburg, Pa., Jan 15*—A membership committee consisting of Messrs. Herit, Haussman, Stauffer, Haas and Butler was appointed, and Russel Jones, Sr., was appointed Chairman

of the Educational Committee. Two representatives of the Detroit Lubricator Co., Mr. Strauss and Mr. Anderson, were on the educational program for the evening. They had prepared six subjects for discussion and gave the members a choice of two of these. The ones chosen were "Moisture—its cause, cure and prevention" and "Controls—application and repair." Slides were used to demonstrate the subjects, and following the talks an open discussion was held. Thanks were expressed to Messrs. Strauss and Anderson for making this meeting such an interesting and educational one. Refreshments wound up the evening.

• COLUMBUS CHAPTER, *Columbus, Ohio, Jan. 14*—A Nominating Committee consisting of Bill Redd, Ray Herrel and Howard Grossman was appointed, and during the business meeting a discussion was held about a forthcoming chapter party. Following this, an article about copper plating, written by Paul B. Reed, was read by Mr. Grossman and a question and answer session followed.

Among the new officers of the Columbus Chapter are President Walter Groetzinger (left) and Secretary-Treasurer Albert Yoe (right). Other officers elected were Ray Herrell, Vice-President and George Myers, Sergeant-at-Arms.

At the February 11th meeting, Educational Chairman Yockey introduced Mr. Harrington, Manager of the Air Reduction Sales in Columbus; A. W. Swift, Handy & Harmon of New York; and M. C. Robbins of Handy & Harmon's Cleveland Branch. These men put on a program that was interesting and constructive.

• CORN BELT CHAPTER, *Bloomington, Ill., Jan. 14*—Following an enjoyable dinner, the following officers were installed for the ensuing year: Edmund Sperlin, *President;* Ralph Porter, *Vice-President;* Harold Mason, *Secretary;* Eldon Burke, *Treasurer;* Frank Walters, *Sergeant-at-Arms;* Gordon Eubanks, *Educational Chairman.* Board of Directors—John Link, Sam Taylor, Robert Saunders and Joe Woodard.

• CORPUS CHRISTI CHAPTER, *Corpus Christi, Tex., Jan. 13*—After a rather lengthy business meeting, during which Clyde Gross and Jack Friesen were elected members of the chapter, the educational program was conducted. E. A. Price of the Penn Electric Switch Company presented a slide lecture on Penn controls which was very well rendered and well received by all present.

On February 10th the following officers were elected to serve for the coming year: B. C. Pumphrey, *President;* Jack Ladewig, *1st Vice President;* C. W. Neisel, *Secretary-Treasurer;* Wallace Lindeman, *Sergeant-at-Arms;* and C. W. Neisel, *Educational Chairman.* Reports were then given on the national convention and a round table discussion held during which the questions asked by the members were answered.

• DIRIGO CHAPTER, *Lewiston, Maine, Jan. 13*—Election of officers for 1948 was held with the following results: Robert LeBourdais, *President;* Wade Hapgood, *1st Vice-President;* Ralph W. Lowe, *2nd Vice-President;* Ralph A. Wagg, *Secretary-Treasurer,* James A. Girou, *Sergeant-at-Arms;* and Clayton E. Canning, *Educational Chairman.* The guest of the evening, Joseph Simons from Hartford, Conn., gave a short address to the members, and the thirty who attended the meeting in the face of a bad storm, felt that this was one of the most enjoyable meetings held for some time.

On February 9th, Past President Daris was presented with a pen set in appreciation for his efforts as the chapter's first president. Educational Chairman Canning suggested a question box be constructed for the use of members who have questions to ask. The subject of "Electric Motors" was chosen by Norman Thurston, Electrical Engineer, on the educational program. Mr. Thurston gave a very comprehensive lecture on this subject, touching upon every important factor pertaining to electric motors. A question and answer period followed.

• DISTRICT OF COLUMBUS CHAPTER, *Washington, D. C., Jan. 13*—The following officers were elected at this meeting to serve for the year 1948: H. F. Helms, *President;* E. A. Fowler, *1st Vice-President;* R. W. Davies, *2nd Vice-President;* R. E. Sibley, *Secretary;* H. R. Ingram, *Treasurer;* J. L. Doggett, *Sergeant-at-Arms.* Educational Committee—Louis Levy, Chairman, James B. Mills and G. D. Kelly. Board of Directors—J. S. Gourley, Jr., H. D. McCoy, H. C. Helms and Milton Rosenfield. A motion was passed that future meetings be held on the second Thursday of the month.

• FAIRFIELD COUNTY CHAPTER, *Fairfield Co., Conn., Feb. 9*—Detroit Lubricator Company representatives presented an interesting showing of their valves and service problems. Many questions were brought out and cleared up by the Detroit men. Following this the second group of educational film was presented.

• FLORIDA WEST COAST CHAPTER, *Tampa, Fla., Jan. 8*—After a brief business discussion the meeting was turned over to the Educational Chairman who gave a very interesting discussion on centrifugal pumps, water cooled condensing systems, brine circulating systems, scales, the electrolysis and reactions of various metals. A discussion

The charter was presented to the Fort Wayne Chapter on February 9 by Earl Yockey, International Director, during a very enjoyable meeting attended by 62 members and visitors. Officers of the chapter pictured in the upper photo, front row, left to right are: C. L. Ripley, Director; Charles Hill, Director; A. A. Hughes, President; Earl Yockey, N. W. Engelbrecht, Treasurer. Standing—left to right, W. V. Gildea, Educational Director; Siemon Dettmer, Vice-President; Vern Anderson, Sergeant-at-Arms; P. E. Whitacre, Secretary; and E. R. Knepper, Director.

The lower picture is a general view of the members in attendance.

then came up on different chemical agents to use in evaporative and shell and tube condensers to dissolve and prevent scale formations. A training film on flare and solder connections was also shown.

• FORT WAYNE CHAPTER, *Ft. Wayne, Ind., Jan. 12*—There were 58 members present at this meeting. The temporary officers elected previously were chosen as permanent officers. In addition, the following were elected: Walter Gildea, *Educational Director;* Verne Anderson, *Sergeant-at-Arms;* and Gene Knepper, Charles Hill and C. L. Ripley, *Directors.* A committee to investigate a suitable place for future meetings was also appointed.

Feb. 9—A banquet held at the Hotel Van Orman was attended by 51 persons. A delicious dinner was served, after which International Director Earl Yockey gave a short talk about the purpose and aims of the Society and answered questions put to him by the audience.

• GRANITE STATE CHAPTER, *Manchester, N. H., Jan. 13*—The educational portion of the program was put on first, because the speaker of the evening had to leave early to catch a bus. J. Lawrence Hall introduced Bernard M. Packtor of Tenny Engineering, Inc., who gave an excellent talk on the construction and application of Tenny expansion valves, and then "unveiled" the Tenny defrostolator. The business meeting that followed was devoted to chapter affairs.

At the February 10th meeting the speaker of the evening, Norman Honacher of A. E. Borden Company, gave a very interesting and educational talk on the engineering of equipment. Coffee and doughnuts were served after adjournment.

• GREENVILLE CHAPTER, *Greenville, S. C., Jan. 14*—The meeting was turned over to W. N. King, owner of Texwood Mfg. & Sales Co., who provided the dinner and en-

tertainment for members and their wives. Forty-five were present and the dinner of fried chicken, friend fish, chicken pie, barbecue sauce, etc., was enjoyed by all.

• HEAD OF THE LAKES CHAPTER, *Duluth, Minn., Feb. 10*—The Educational Chairman introduced Joe Page of the Detroit Lubricator Co., who held the attention of the audience with a talk on Detroit solenoid valves and controls, and also a recorded talk accompanied by slides, on superheat. Mr. Page then answered questions asked by the more than thirty members and guests. Refreshments were served through the courtesy of Detroit Lubricator Co.

• HOUSTON CHAPTER, *Houston, Tex., Jan. 12*—The new officers to serve for 1948 are Stanley Evans, *President;* P. H. Hillman, *1st Vice-President;* V. G. Burkhart, *2nd Vice-President;* Robert H. Crowe, *Secretary-Treasurer;* A. J. Muehr, *Sergeant-at-Arms;* and A. A. Haney, *Educational.* Directors—Carl I. Johnson, J. M. Kellett, Jr., Walter H. Eichmeyer and T. L. Burroughs. Fred White gave a discussion and diagram of electrical connections, pointing out the flexibility and design for heating and cooling systems used in air conditioning most commonly used in Houston and surrounding territory. This was followed by a motion picture presented by Warren Clark of Phillips Dodge Co., showing the processing of copper from the mine to tubing, all of which proved very interesting and was thoroughly enjoyed by all present.

On February 10th the attendance of members and guests totaled 38. The educational program featured Gene Price of Penn Electric Switch Co. of Goshen, Ind., who presented a picture slide showing the fundamentals of their controls and the introduction of the newest type of temperature and pressure control. Next, J. M. Kellett of Cox & Blackburn, Inc., showed a film stressing the power of suggestion as an aid to increased sales.

• HUDSON-MOHAWK CHAPTER, *Schenectady, N. Y., Feb. 3*—A membership, entertainment, educational and publicity committee were appointed during the business session. The meeting was then turned over to Educational Chairman Douglas Marshall who gave an excellent talk on the use and application of automatic and thermostatic expansion valves in the refrigeration field.

• INDIANAPOLIS CHAPTER, *Indianapolis, Ind., Jan. 13*—President Hartzog introduced Mr. Calvert, a lawyer, who gave the members a resume of the proper procedure to take in having a code passed in the Legislature. A committee to draft a code will be appointed shortly. The annual election of officers was then held and those elected are: L. T. Smith, *President;* N. Wright, *Vice-President;* H. W. Hoffmeyer, *Secretary;* S. Whitney, *Corresponding Secretary;* E. Jenkins, *Treasurer;* D. Stoner, *Sergeant-at-Arms.* Board of Directors—L. Hartzog, Chairman, E. W. Wulf, J. A. Salter, R. E. Allen, T. Driskell, N. Mohr. Educational Committee—M. Reno, Chairman, R. Duncan, L. Townsend and S. Horine.

• JOPLIN CHAPTER, *Joplin, Mo., Jan. 14*—Due to the resignation of Douglas Fuller, the chapter's Secretary, Joe Ables was elected the new Secretary. The educational program consisted of the showing of a picture film, following which refreshments were served.

• KANKAKEE VALLEY CHAPTER, *Kankakee, Ill., Feb. 9*—It was decided to fine each member 50c for each meeting he does not attend—the funds raised in this manner to be used for a party. An Entertainment Committee consisting of John Mucha, W. Surber and Bob Petty was appointed. The guest of the evening was Harry Lunusky, City Electrician, who explained what wiring a serviceman could do.

• KEY CITY CHAPTER, *Dubuque, Iowa, Jan. 7*—On the educational program a film entitled "The Story of Thawzone" was shown. Following this, Mr. Galloway, vocational director of the Dubuque Public School System, spoke on the immensity of the refrigeration industry, emphasizing the responsibility of the service engineer in the industry.

At the February 4th meeting the guest speakers were Rev. Schulte, Loras College Faculty and Mr. McLaughlin of the Iowa Electric Motors Service. Rev. Schulte explained atomic energy, and Mr. McLaughlin spoke on the differences and advantages of the induction type motors and of the capacitor type motors.

• LIMA CHAPTER, *Lima, Ohio, Jan. 15*—Educational Director Dan Shively presented Mr. Domke and Mr. Schumann of Mueller Brass Company. Mr. Domke gave an interesting talk on various applications and solved many problems that had perplexed the members. Refreshments were served after adjournment.

• METROPOLITAN NEW YORK CHAPTER, *New York, N. Y., Dec. 11*—There were 53 members and 29 guests present at this meeting. The election of officers took place with the following results: Fred Asselmeyer, *President;* I. Arnold, *1st Vice-President;* J. White, *2nd Vice-President;* M. Robinson, *Treasurer;* D. P. Whyte, *Secretary;* Murray Adinoff, *Sergeant-at-Arms;* and Leo Goldfarb, *Educational Chairman.* Board of Directors—Fred Worthington, Gus Meinheart, Danny Salin, Peter Salin, Peter Pilko, Bernard Krasner, Paul Steinberg, Sterling Graves, William Spellman and Sam Hammer. A tube bending contest was conducted by Messrs. Burk and Byrnes of the Imperial Brass Mfg. Co., and the first prize of a tube cutter and wide range flaring block was won by Carl Strunz, a guest; the second prize, a flaring block, by D. P. Whyte; the 3rd prize, a tube cutter, by C. Hunt; and the 4th prize, 40 ft. of ½" tubing, was taken by F. LoPresto. I. Arnold and M. Grodner came in 5th and 6th, respectively.

• MIAMI CHAPTER, *Miami, Fla., Jan. 28*—During this meeting the subjects of leak detection, reverse cycle systems, fluorescent lighting, two and three stage systems, refrigeration oil and construction of service trucks were discussed.

• MIDLAND EMPIRE CHAPTER, *Billings, Mont., Feb. 10*—Although the weather was well below zero, there were 24 in attendance at this meeting, including several out of town members. A complete description of the features of the National Convention was given by Herb Schultz. P. P. Boukind of the North

The wives and guests of members were invited to a dinner meeting of the Scioto Chapter, January 15. An accordionist provided music during dinner and a lecture on "Freezing Foods" entertained the group after dinner. Pictured above, left to right, are: Kenneth Davids, Educational Chairman; Mrs. Klaimeyer, Home Economics Dept., Ohio Public Services, who was the after dinner speaker; Jack Croushore President of the chapter.

Montana Chapter gave a short talk, telling of some interesting experiences he has had during his refrigeration career which began 45 years ago on a brewery installation which took nine months to complete. The remainder of the meeting was turned over to Donald Thorpe, Montana representative for Linde Air Products Co., who gave an informative talk on the manufacture of acetylene, precautions in its use, etc., citing many examples of danger. Next, Norm Sulenes gave a practical demonstration of silver soldering with both welding equipment as well as with Prest-O-Lite and compressed air, using both Easy Flow No. 3 and Sil Fos. Refreshments were served after the meeting adjourned.

● MOUNT ROYAL CHAPTER, *Montreal, Que., Jan. 15*—After the business meeting, three films were shown entitled "Skiing", "I Wonder" and "Four Seasons."

● NOVA SCOTIA CHAPTER, *Halifax, N.S., Feb. 16*—The meeting was held at the Lord Nelson Hotel and during the business meeting Al Pike, President of the Interprovincial Association, gave a very good talk on the activities of the Society and told briefly what transpired at the National Convention in Cleveland. Refreshments were served following the meeting.

● PENINSULA CHAPTER, *Newport News, Va., Feb. 12*—The chapter was fortunate in having F. Burch and W. Bryant of the Norfolk branch of the Carrier Corporation on their educational program. Their presentation was a sound motion picture entitled "Weather by Carrier Corp.," which was enjoyed by all.

● ST. LOUIS CHAPTER, *St. Louis, Mo., Jan. 27*—Having finished the business at hand, the audience listened to an interesting and educational talk by John Lewis on the use of the "Sterilaire Lamp," used for controlling bacteria and mold condition in walk-in coolers. After his talk, Mr. Lewis answered many questions from the floor. Following the awarding of attendance prizes, refreshments were served.

● SCIOTO CHAPTER, *Marion, Ohio, Jan. 15*—Forty-five members, their wives and guests enjoyed the dinner which preceded the business meeting. Mrs. Lawrence Morse addressed the ladies concerning the formation of a ladies' auxiliary and tentative plans were discussed at the close of the evening. On the educational portion of the program, Miss Klaimeyer, Home Economist for the Ohio Public Service Co., gave an illustrated lecture entitled "Freezing Foods." Proper preparation of foods, correct packaging and wrapping of materials, how to pack foods efficiently and how to utilize locker space were emphasized and illustrated. At the close of the lecture Miss Klaimeyer cheerfully answered the many questions submitted by her audience.

● SEATTLE CHAPTER, *Seattle, Wash., Jan. 6*—N. Schwartz led a discussion on various causes of electrical troubles and the methods necessary to determine the definite fault of each cause. The same routine was followed concerning compressor troubles.

● SOUTHERN TIER CHAPTER, *Elmira, N.Y., Jan. 15*—Chapter business occupied the entire evening and after its completion a Weatherhead drier, donated by Mr. Clay, and two packages of frozen food donated by Mr. Bilson, were raffled off.

At the annual banquet held on February 19, George F. Pickel, retiring president, installed Charles H. Clay as *President;* Jack M. Bilson, *Vice-President;* Daniel J. Mahar, *Secretary;* and Edwin J. Dailey, *Treasurer.* Guests included C. E. Burlingame of Brunner Mfg. Co., and W. A. Rickenback of the Sporlan Valve Co.

• TOLEDO CHAPTER, *Toledo, Ohio, Feb. 11*—This was a banquet dinner held at the Villa Nite Club, with 49 members present. Detroit Lubricator presented the educational phase of the meeting immediately following the dinner. Frank Y. Carter, Chief Sales Engineer for Detroit Lubricator, gave the lecture along with movie slides, assisted by Paul E. Boucher and Dick Stoll, salesmen for Detroit Lubricator.

• TRI-COUNTY CHAPTER, *Elgin, Ill., Jan. 17*—This was the night of the chapter's annual banquet and 55 persons from Joliet, Warrenville, Chicago, Aurora, St. Charles, Rockford and Elgin, enjoyed a delicious steak dinner served at the Unity Hall. The table was beautifully decorated with corsages for the ladies and boutonnieres for the men. After the dinner, Willis Stafford made the presentation for the chapter, of a beautiful fountain pen desk set to the retiring Secretary and Treasurer, B. V. Clark. Names were then drawn for the door prizes. Warren Ainesworth, a magician from Elgin, mystified the audience with his many sleight-of-hand tricks. R. L. Hendrickson acted as master of ceremonies. New officers elected and installed by Wm. J. McCarley, president of the Illinois Association, assisted by L. L. Sturch, 2nd Vice-President of the Association, are: Harold F. Ellis, *President;* Arnold Lohbauer, *Vice-President;* Russell Hagemann, *Secretary-Treasurer;* Raymond Surges, *Sergeant-at-Arms;* and R. C. Marquis, *Educational Chairman.* Board of Directors—Clem Berg, Fred Johansen, and Ralph May.

• TWIN CITIES CHAPTER, *Minneapolis, Minn., Jan. 6*—This meeting was preceded by a dinner. Fred Phillips was elected Secretary to take the place of Mr. Ost who resigned. The speaker of the evening was Joe Page, factory representative of Detroit Lubricator Co., who after a short discourse introduced Frank Carter who explained Detroit expansion valves with the aid of slides. All questions were ably answered by Mr. Page.

At the February 3rd meeting, eight chairmen of various committees were appointed and the applications of five new members approved and accepted. John Bader introduced the principal speaker of the evening, Paul Domke of Mueller Brass Company. Mr. Domke spoke on the subjects of construction and pressure drop on refrigerant line valves, heat exchangers, constant pressure valves, dehydrators and the midget purger, to which the audience gave their undivided attention.

• WESTERN MASSACHUSETTS CHAPTER, *Springfield, Mass., Jan. 13*—The highlight of this meeting was an educational talk by Mr. Jackson of the Kold-Hold Mfg. Co., on the subject of truck application, with the use of slides to illustrate.

The February 10th meeting had an attendance of 22 members. On the educational program, three representatives of Detroit Lubricator Co., Messrs. Kay, Strauss and Sell, gave a talk on magnetic valves, expansion valves and various hookups for coils and blowers, which everyone enjoyed.

• WOLVERINE CHAPTER, *Lansing, Mich., Jan. 12*—This was a dinner meeting sponsored by Mr. Garlock of the Garlock Sales Co. of Lansing, in honor of Sidney Ferrin. After dinner, Mr. Guffy gave a very fine talk on truck refrigeration, including the subjects of evaporator temperature, mounting accessories for truck plates and low pressure refrigeration in trucks.

Pictured here are officers and members of the newly organized Long Beach, California, Ladies Auxiliary. In the upper picture, back row, left to right are: Mrs. Stewart Bell, Treasurer, Mrs. Tom Ringrose, Sergeant-at-Arms; Mrs. Pat Riley, 1st Vice-President. Front row: Mrs. Joe Mura, Secretary, and Mrs. E. L. Murphy, President, holding the charter.

LADIES' AUXILIARY

• KANSAS CITY AUXILIARY, *Kansas City, Mo., Jan. 9*—An installation party was held on this date at the home of Louis Huston, and all those who attended had an enjoyable time.

The regular meeting was held on January 15th at the I.O.O.F. Hall. After the Auxiliary business was completed, games were played and the lucky winners were Mrs. Booi and Mrs. Brown. A raffle gift donated by Mrs. Paul Shapiro was also won by Mrs. Brown. Doughnuts and coffee were then served to the approximately 55 ladies in attendance.

• NIAGARA FRONTIER AUXILIARY, *Buffalo, N.Y., Jan. 9*—During the business meeting, Mrs. Swan was appointed in charge of entertainment for the coming year and Mrs. Orsolits appointed to take charge of the Good and Welfare and the Dark Horse Fund. Several other matters were brought up and decided upon before the meeting adjourned. The Dark Horse prize was won by Mrs. Harold Swan.

NEW AND IMPROVED EQUIPMENT

Information in this department is furnished by the manufacturer of the article described and is not to be construed as the opinion of the Editor.

Dispenser

PRODUCTION of a new streamlined, self-service ice cream dispenser, which delivers a package at the press of a button, is announced by Frosted Food O'Mat, Inc., of California.

Following years of research and development, the company reported its plans to commence distribution which will stimulate impulse buying and offers ease of operation. Each item has its individual delivery button which, when pressed, delivers a package without the purchaser opening or tilting a door.

The Ice Cream O'Mat, as the unit is called, was designed to meet the requirements of both men and women shoppers as shown by surveys conducted for several years. The surveys indicated that storing and selling ice cream call for new techniques. This showed the need of equipment that would make shopping for ice cream as easy as selecting packaged goods from shelves in the retail stores.

The unit has many mechanical features, including an automatic defroster, and maintains below-zero temperature throughout the food compartment. First package in is first package sold. It means complete turn-over of stock for it entirely eliminates burying of packages at bottom of cabinet.

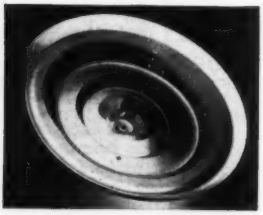
Ice Cream O'Mat's electrically-controlled mechanism for dispensing a package at the press of a button is economical, as well as efficient. The cost of electricity for dispensing 3,000 packages is only 1c. It will also be available with a coin-operated mechanism.

within thirty days. For the first time the shopper now looks at an attractive cabinet, scans a row of as many as six inviting ice cream flavors, presses a button—and out drops a package.

The new dispenser offers merchandising features,

Air Diffuser

A NEW type air diffuser has been announced by the Anemostat Corporation of America, which provides any desired air flow pattern at the turn of a knob. A unique adjustment mechanism varies the vertical position of the third cone, thus producing



different air flow patterns ranging from draftless diffusion to downward projection, without affecting air resistance.

This advanced type air diffuser utilizes the Anemostat aspiration principle which draws room air into the device and mixes it with supply air. The amount of air drawn into the outlet depends upon the adjustment setting and varies from 15% to 35%.

This adjustable feature permits the Type C-1 Anemostat to be used for heating, ventilating or cooling in any combination. The air flow pattern may be modified to meet changing conditions of room occupancy or seasonal weather variations. It can easily be adjusted to neutralize the effect of local sources of heat gain or loss of air distribution problems caused by beamed ceilings, nearby walls or columns. It functions equally well mounted flush to the ceiling or on exposed duct work. Adjustment of the device can also be accomplished by remote automatic or manual control. Pneumatically operated control equipment may be used to adjust any number of Anemostats simultaneously.

A new latch-like method of fastening inner assembly to outer cone saves two-thirds of installation time and since the inner cone assembly is instantly removable, direct CFM readings can readily be taken in the neck of the Anemostat. This greatly reduces the time required to balance the system.

Air Nozzle

A NEW, heavy-duty air nozzle, the body of which is made from a heat-treated duraluminum forging, has been announced by The Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago 7, Ill. The nozzle is available with 4 interchangeable noses.

Because of its forged aluminum construction, the new nozzle is said to combine exceptionally high strength with light weight and ease of handling. It is well adapted for use in repair and maintenance work.

The four noses available are: (1) a general purpose nose; (2) a long nose, 10⅝", which can be bent, for getting into recesses, pockets, etc., excellent for cleaning condensers and coils; (3) an adjustable nose for high pressure lines or where air blast must be controlled; and (4) a wide, flat nose for broad surfaces. The nozzle can be purchased with whatever noses are desired or with a complete set.

Streamlined operating button at top is instantly accessible and is guarded against damage. Nozzle has pistol grip to fit the hand and a convenient loop for hanging.

Neoprene washer used withstands oils and acids in air. Self-cleaning seat aids in assuring against leakage. Has ¼" female pipe thread.

Nozzle, complete with 4 noses, is designated No. 143-A and is described in Bulletin No. 353, available from the manufacturer.

Leak Detector

A NEW portable leak detector especially designed for production testing of hermetically sealed units such as are used in refrigerators, deep freezers, and air conditioners in which halogen compound is the refrigerant, has been announced by the Special Products Division of the General Electric Company. Other applications of this instrument include locating leaks in tanks, boilers, piping, and other closed systems into which halogen compounds can be introduced as a tracer.

Developed by General Electric's Research Laboratory and engineered by its General Engineering and Consulting Laboratory, the new instrument can detect a leak so small that it will release only 1/100th of an ounce of Freon in one year. It can inspect in a few seconds an ordinary joint or seam for leaks and, in addition, is desirable for service testing in the field as well as for assembly line use. The detector unit weighs only 3 lbs. and the control unit 15 lbs.

The detector unit is a handheld probe with a pistol grip, having a metal nozzle with a plastic tip. The unit contains a sensitive element which is responsive to halogens in the air, and a motor-driven blower which circulates the air through the sensitive element. An 8-ft. cable lead is supplied to connect the detector unit to the control unit.

The control unit is a self-contained, portable unit containing the power supply, amplifier, indicating instrument, necessary controls, and a carrying strap. A 25-ft. lead is supplied for connecting the control unit to the power supply.

To operate, the control unit is connected to any commercial 115-volt, 60-cycle power supply. Voltage should be regulated to within 1 volt. This generally requires an automatic voltage stabilizer. After the power switch is turned on, balance is obtained by adjusting the balance knob until the milliammeter reads zero. The range is then set on H, the highest sensitivity.

If the unit to be tested does not already contain halogens or a halogen compound, a halogen is introduced as a tracer gas. The nozzle of the probe is then held about one-half inch from the surface of the unit being tested, and is moved about at the rate of about one-half inch per second. As the nozzle passes over a leak, halogen vapor is drawn in, and as this vapor reaches the sensitive element, the increase in current is indicated on the milliammeter.

Provision is made on the control unit for using earphones or a loudspeaker to indicate leaks, in which case the indication will be an audible note with the pitch depending upon the size of the leak.

Betz Units

MODEL "HR," a half-round Ceiling Unit Cooler for walk-ins and florist boxes, is being introduced by Betz Corporation, Hammond, Indiana, manufacturer of "Filterpure" lowside equipment.

The new Model "HR" is manufactured in six sizes from 260 to 867 Btu. per 1° T.D. Its "half-moon" design permits installation on cooler ceiling next to wall. A low velocity fan motor in the lower side of the unit forces "slow" air over the coil. Distribution takes place through a 180° arc, blanketing the cooler completely with cooled air. Relative humidity is maintained in excess of 85%.

Model "Z", a new Low Temperature Water Defrost Unit is also being introduced by Betz Corporation.

The new Model "Z" is made in capacity ratings up to 1800 Btu. per 1° T.D., and provides efficient low temperature cooling to —20° F. Quick-acting, automatic water defrost covers the entire coil with water spray, assuring unusually fast defrosting. Because of small overall dimensions, it is suitable for many installations where space is limited.

Pipe Compound

A LARGER diameter stick of pipe joint compound called Jumbo Pipetite-Stik for larger threaded pipe is announced by Lake Chemical Co., 607 N. Western Ave., Chicago. It is companion to the regular size Pipetite-Stik introduced two years ago.

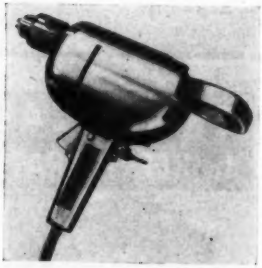
Pipetite Jumbo-Stik, like the regular size, comes in handy, clean, easy to use stick form. It is used by simply rubbing several strikes of the stick across the pipe threads. It spreads and fills threads when turned. Jumbo-Stik is individually wrapped in tinfoil for easy handling. The regular stick is supplied in a cardboard holder. Both sticks may be carried around in a pocket or tool kit, always ready for instant use.

These are the features of Pipetite-Stik. Withstands Freon, gasoline, oil, butane, propane, sulphur, ammonia, brine, acid, gas, air, water, steam, etc. Joints can be disconnected easily months and years after applying. Lubricates and completely seals pipe joint threads, nuts, bolts, gaskets, turnbuckles, etc.

Pipetite cannot flow into and clog even the smallest size pipes. Withstands vibration, temperature changes, deflection, pressure. Joints can be remade without having to clean the threads. Prevents rusting. Non-toxic. Contains no leads. Contains no injurious ingredients. Ideal for food and refrigeration piping.

Drill

CUMMINS PORTABLE TOOLS announces the new Model 200 Portable Electric ½" drill, also rated for 1" bits when drilling in wood. Weighing approximately eight pounds and of compact design, it is balanced for maximum ease of operation. The carrying handle is of the new, horizontal style and an auxiliary side handle is furnished for two-handed operations.



The manufacturer emphasizes that the Cummins 200 is a full-powered half inch drill, suitable for general use in all type of work, whether in factory, shop, home or farm. Its condensed styling makes it especially convenient in tight places and close quarters.

Adequately powered by a Universal motor reduced by helical gears to 550 rpm. spindle speed, the standard Model 200 will operate on 115 volts, either AC or DC. Drills for operation on 230 or other special voltages can be furnished when required. A built-in fan provides cool operation. Frame is die-cast aluminum alloy, gears are precision cut from alloy steel, pinion is integral with armature shaft.

Multiple chrome ball thrust bearings carry the drilling pressure, and self-aligning "Oilite" serve at other points. This fourth item in the Cummins line of Portable Tools retails at $39.95.

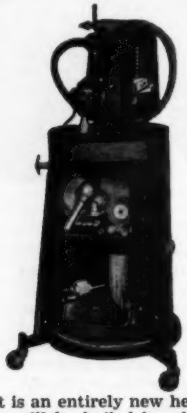
Lapping Tool

MICHAEL P. SCHLOSSER of Port Chester, Conn., writes us that he is manufacturing a new lapping tool for Coldspot units with which the bronze seal nose can be refaced in five minutes without dismantling the compressor. Simply remove the gas from the system, remove the motor to give working room, and go to work on the seal. The steel nose is refaced on a surface plate.

In addition to the tool pictured, there is a thread washer and lock nut to remove the bellows seal. Mr. Schlosser states he has repaired over 200 units with the tool in the past two years without a single failure.

Portable Shop

"THE Handy-Matic," a motorized, completely equipped portable repair shop for "on-the-spot" repairs anywhere, is announced by Wyzenbeek & Staff, Inc., Chicago, Ill.



It is an entirely new helper that will be hailed by all repairmen—an original type of flexible shaft machine mounted on a compact easily transported cabinet containing 25 accessory tools, and two dozen supplies that enable the repairman to go right ahead with the job wherever he finds it, the same as if he had it in his shop headquarters.

Power is supplied by a ⅓ hp. motor, 110 or 220 volts, 60 cycle A.C. The flexible shaft is the WYCO, No. 10-P, five feet long, and has the famous WYCO non-metallic innerliner. Internally controlled flexing is built into the shaft housing to banish all heating, kinking or whipping. Three speeds are provided, 1400, 2400, 4500 rpm., with V-belt drive.

The cabinet, 32" high, on three caster legs, is of strong all-steel construction with handsome gray crackle finish and glossy black trim. It is conveniently equipped with shelves, enabling the repairman to find the desired tool instantly. Tools and accessories which come with the cabinet, include the latest for sanding metal or wood—for drilling — wire brushing — grinding—buffing—for sawing metal or wood—for filing — disc sanding — carving — paint or varnish removal—waxing, etc., all interchangeable. Shipping weight 100 lbs.

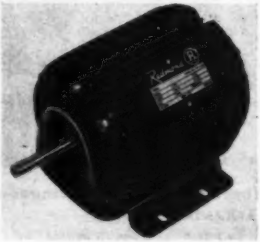
The time and labor saving advantages are obvious. "The Handy-Matic" means profit to repairmen, to all industrial and commercial establishments and institutions.

Micromotors

NEW 6-pole shaded pole fractional horsepower electric motors for applications specifying 1000 rpm. with full rated loads are now being manufactured by Redmond Company, Inc., Owosso, Mich. Designated as Type "Y," these recent additions to the Redmond line known by the trade-name "Micromotors," include ventilated models up to 1/15th hp., and totally enclosed models up to 1/20th hp. Both types handle deep pitch fans with a minimum of air sound.

These latest Redmond motors are especially suitable for use on such products as hot air furnaces, exhaust fans, floor heaters, unit coolers, air circulators and unit heaters.

Sturdy die cast cases, machined for accurate alignment, are formed with finned surfaces for maximum cooling. Flushweld rotors, precision skewed, have completely filled slots that cannot collect dust, dirt or chips. Rotor surfaces are machined and rust inhibited. All laminations are pneumatically stacked, and field coils are machine wound and varnish baked. Extra large porous bearings are individually fitted to within .0001" tolerance at a clearance of .0005", provide an even flow of oil to the bearing surfaces at all times, filter the lubricant, and induce constant recirculation. 6 cubic inches in oil reservoirs is comparable to motors of much larger size.



The open ventilated 1/15th hp. model measures 5-1/16" overall of base and the 1/20th hp. overall base length is 5¾". Large live rubber cushions insulate motor from base. Heavy studs are provided on models without bases. Type "Y" Redmond 6-pole motors may be operated in any position without change in construction.

Bench Shaper

SOUTH BEND LATHE WORKS has announced that production of a new 7" Precision Bench Shaper will start in mid-year. Production of a new 14" Drill press was announced on January 1. Both of these new items are marketed in addition to the regular 9", 10", 13", 14½", 16", and 16/24" swings South Bend Precision Lathes; attachments and accessories, many of which are new items; and tools.

Further information can be obtained by writing the South Bend Lathe Works, 207 East Madison Street, South Bend 22, Indiana, U. S. A.

NEWS OF THE EQUIPMENT INDUSTRY

SCHNACKE TO HOLD SERIES OF MEETINGS FOR DEALERS

A SUCCESSION of sales and service meetings held in conjunction with their distributor and dealer organizations throughout the country are being established by Schnacke, Inc. For the benefit of distributors, dealers, contractors, engineers, and designers, these meetings will cover all of the phases of construction and application of Schnacke compressors and condensing units.

F. C. Schnacke, President of the Company, stated that there is incorporated in the meetings a series of slide photographs showing the entire story of the production and assembly of the units together with complete advertising and sales promotion data so that no phase of the fabrication or distribution of the Schnacke line is overlooked.

The meetings are being held for the purpose of providing a more complete knowledge of the Schnacke 5 to 50 hp. compressors and condensing units to the distributor and dealer organizations for their customers.

Headed by T. G. Thomas, Sales Manager, and G. A. Lamb, Chief Service Engineer, working in conjunction with the Schnacke Division Managers, these meetings are being held in all parts of the United States, and at the present time are scheduled for St. Louis and Kansas City, Missouri, Chicago, Illinois, Fond du Lac, Wisconsin, and New York City.

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EBCO LAUNCHES EXTENSIVE PROMOTIONAL CAMPAIGN

THE Ebco Manufacturing Co. of Columbus, manufacturer of electric water coolers, has launched a $150,000 promotional program for 1948 for its pressure and bottle type electric drinking water coolers.

A. R. Benua, president of the firm, said that the program will seek to boost Oasis sales by creating a conscious demand on the part of the public for readily available, properly cooled drinking water in factories, offices, stores, theaters, stadiums, banks, and other places where numbers of people work or congregate.

The electric drinking water cooler has been sold only to 15 or 20 percent of its saturation point, Benua said, and the Ebco company sees tremendous possibilities in the field.

The promotional program includes both intensive advertising in a considerable number of general, trade, and specialized fields and public relations activities directed by Theodore R. Sills & Company of Chicago.

The health value of water and the business economy of having properly cooled drinking water within easy reach of employees and customers will be stressed in the Ebco program.

Joseph R. Siegert has been appointed Eastern States District Sales Manager for the Oasis Electric Drinking Water Cooler. His territory will include Pennsylvania, Maryland, Delaware, New Jersey, Northern New York State, and Washington, D. C.

J. R. SEIGERT

From 1945 to 1947, Siegert served as Eastern Sales Representative for the Universal Cooler Division of International Detrola Corp. From 1936-1945, he had his own business in Philadelphia, distributing automatic refrigeration and heating equipment. For a number of years, prior to this, he had served as Commercial Sales Manager for J. J. Pocock, pioneer Philadelphia Frigidaire Distributor.

* * * *

MARSH DEVELOPS NEW SALES PROMOTION SET-UP

THE Jas. P. Marsh Corporation has developed a complete merchandising and sales-promotion set-up in connection with the Marsh Duo-Temp fully-mechanical in-

door outdoor thermometer. The merchandising steps, according to the manufacturer, have been guided by a complete survey of market and exploratory advertising in consumer media.

A new full-color counter and window display has been prepared, new three-color circulars, and mats for local advertising tying in with consumer advertising appearing and projected in national media. In studying consumer reaction through dealers and mail order firms, it has been found that the unique fully-mechanical design and easy reading features make a strong appeal in creating sales and that the utility of the instrument makes it a powerful repeater. Encouraged by the results of initial sales efforts, more extension plans are being made. A bulletin covering merchandising aids and dealer proposition may be had by writing to Jas. P. Marsh Corporation, Dept. Q-1, Skokie, Ill.

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ROCHESTER SALES OFFICE OPENED BY PENN ELECTRIC

A NEW sales office supervised by J. E. Corbett at 2610 Monroe Ave., Rochester 10, New York, was recently opened by Penn Electric Switch Co., Goshen, Indiana.

In making the announcement, R. H. Luscombe, sales manager, stated that the Rochester office is a division of the company's New York branch which is managed by N. E. Jennison. This move was made to give more efficient service to Penn's customers in upper New York state.

J. E. Corbett formerly covered this territory from the company's New York office since his return from service with the Marine Corps. He has been with Penn approximately 10 years and has had wide and varied experience in the application of automatic controls for heating, refrigeration, engine, pump and air compressor equipment.

* * * *

MAIRE NEW MIDWEST SALES MANAGER FOR GENERAL CONTROLS

J. F. RAY, Director of Sales for General Controls Co., Glendale, California, announces the appointment of E. B. Maire as Sales Manager of the following Midwestern, Southern and Eastern Branch offices. Boston, Philadelphia, Pittsburgh, Birmingham, New York, Detroit, Cleveland, Chicago.

A group of visiting fixture manufacturers and wholesale refrigeration distributors stop and observe manufacturing operations during their tour of the Servel plant at Evansville, Ind. More than 125 men were guests of Servel for a two-day sales meeting in Evansville preceding the All-Industry Exposition in Cleveland. The program included a factory inspection tour, talks from the sales, engineering and service departments, luncheons, dinners and a breakfast with the Evansville Radio Breakfast Club.

As Sales Manager, Ed Maire will assist and coordinate the efforts of the above branch offices in the contact with original equipment manufacturers, wholesalers, and utilities in the sale of automatic temperature, pressure and flow controls.

Mr. Maire has had many years experience in the automatic control industry and was formerly Regional Sales Manager for General Controls Co.

* * * *

JOHN S. FORBES

THE industry was saddened to learn of the death of John S. Forbes, president of the Superior Valve & Fittings Co., Pittsburgh, Pa., on February 16. While Mr. Forbes had been receiving medical treatment during the past several years his sud-

J. S. FORBES

den passing was a shock to his many friends. He had attended the All Industry Exhibition in Cleveland in January and was active in all its functions.

Mr. Forbes had devoted much time to the improvement of industry conditions and relationships. He was one of the founders of the Refrigeration Supply and Parts Mfg. Assn., later the Refrigeration Equipment Mfrs. Assn., serving as its first vice-president and elected its second president in 1939.

Mr. Forbes identity with the refrigeration industry dated back to 1919 when he joined the Kerotest Mfg. Co. as assistant to the general manager following his return from service in the army. He advanced in the Kerotest organization and was elected treasurer and director of the company in 1933.

In 1938 he left Kerotest to found his own company which he actively served as president until his death.

The many floral and personal tributes from the industry were silent testimony of the leadership and counsel he manifested during his life time.

He was born on April 27, 1894, and is survived by his widow Mrs. Mae Forbes, three daughters, two sons and a sister. Burial was in Pittsburgh on February 19.

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JOSEPH SIMONS OPENS BRANCH

JOSEPH SIMONS COMPANY, Hartford, Conn., has opened a branch in Portland, Maine, located at the corner of Weymouth and Grant Streets. A complete stock of supplies and equipment will be carried at the new branch, serving the states of Maine and New Hampshire.

Larry Clark, formerly with Gerry and Colburn in Portland, will be in charge of the branch. Vern Littlefield will continue to call on the trade as usual.

Facilities of the new branch are particularly well suited to fast service for customers. It is located just off Congress Street, one of the main arteries of the area, which provides easy access for those who are driving. It is near the railroad and bus station which aids the fast shipment of phone and mail orders. The latest in cylinder charging equipment has been installed, allowing the branch to give five minute service.

An invitation is extended to readers of this journal to drop in and become acquainted with the new branch.

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EUBANKS TAKES CHARGE OF INFORMATION FOR CHRYSLER

IRVIN A."BUS" EUBANKS has been named to head the newly created post of Supervisor of Information at the Airtemp Division of Chrysler Corporation according to an announcement by W. C. Newberg, President of the division.

I. A. EUBANKS

Eubanks a former newspaperman, joined Airtemp August 12, 1946 as editor of Chrysler Airtemp News. The publishing of the dealer and employe magazines will remain under his supervision and in addition he will have charge of all informational activities of the division.

E. A. HAMALA JOINS JACK & HEINTZ AS ADVERTISING MANAGER

EDWIN A. HAMALA, prominent Cleveland advertising executive since 1933, has joined the staff of Jack & Heintz Precision Industries, Inc., Cleveland, Ohio, as Advertising and Sales Promotion Manager, Frank R. Kohnstamm, General Sales Manager, announced recently.

E. A. HAMALA

Mr. Hamala directed all advertising and sales promotion activities for the General Electric Co.'s Premier Vacuum Cleaner Division over the nine-year period from June, 1939, until last month, with the exception only of a 1942-1945 military leave of absence.

He embarked upon his advertising career with the Apex Electrical Manufacturing Co. in 1933, following six years in Apex production and engineering capacities. He was appointed assistant advertising and sales promotion manager in 1935, and remained in that position for four years before leaving to accept the advertising managerial post at Premier.

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REBEL TO BE EXPORT MANAGER for REFRIGERATION ENGINEERING

CONTINUING the expansion program which their organization set up a few months ago, Refrigeration Engineering, Inc., Los Angeles, California, have appointed Albert Rebel as Export Manager of the company, according to Hy Jarvis, Vice-President and General Manager. Albert Rebel's appointment as Export Manager of the company follows several other important changes made by "Recold" when they decided to expand distribution of their products to cover the entire national and international markets. For the past 18 years, Rebel has been in full charge of the export division of the Super-Cold Corporation.

ALBERT REBEL

* * * *

FEDDERS NEW SERVICE MANAGER

APPOINTMENT of Gordon M. DeJarlais as Service Manager of the Unit Air Conditioner Division of the Fedders-Quigan Corporation, Buffalo, N. Y., is announced by E. A. Bonneville, Sales Manager of that division. Mr. DeJarlais is developing the complete service and installation program including distributor and dealer cooperation and training.

G. M. DeJARLAIS

Original program covers the new Fedders ½ and ¾ ton room air conditioning units.

Mr. DeJarlais is a graduate engineer and has had extensive experience in the electric refrigeration and air conditioning fields covering all phases including engineering, development, research and experimental work.

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ROBERT B. HOLLAND JOINS KRAMER TRENTON CO.'S STAFF

THE Kramer Trenton Company announces the appointment of Robert B. Holland as representative in California, Nevada, and Arizona. Mr. Holland is well-known on the West Coast in the Refrigeration Industry, having been connected with the direct factory representation of the York Corp. for 23 years.

R. B. HOLLAND

He will maintain an office in San Francisco, at 461 Market Street, and another in Los Angeles at 5225 Wilshire Blvd. Phil Kilgore, who has had years of experience in the refrigeration field, will be in charge of the Los Angeles office.

ACE SALES OFFICE MOVES

ACE Cabinet Corp. are moving their sales department from New York to their newly acquired plant in New Bedford, Mass.

Nelson S. Bloomenstion, sales manager of Ace, moved to his new quarters January 30, and all correspondence should now be addressed Ace Cabinet Corp., New Bedford, Mass.

"Location of our sales office right in the plant," said Mr. Bloomenstion when announcing the change, "will mean faster service for our customers. It is a logical step in our expansion program."

The new plant, recently inaugurated with an elaborate open house celebration, is set up to operate on an assembly line principle. Ace manufactures a full line of ice cream dispensing cabinets, upright ice cream storage cabinets, home and farm freezers, frozen food display cabinets, creamer soda fountains, bobtails and sandwich units.

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ACME BULLETINS

AS A PRACTICAL help to all users of gas mask equipment, the Acme Protection Equipment Company of Chicago is releasing a series of illustrated bulletins presenting a wide range of protection equipment for use in hazardous gas and smoke atmospheres.

In addition to bulletins featuring the Acme Full-Vision gas masks and canisters, full information is provided on proper canisters to use for smokes, fumes, mists, organic vapors, acid gases, ammonia, etc. in a table which provides a long list of gases together with equipment recommended.

Copies of these bulletins may be obtained by writing direct to Acme Protection Equipment Company, 3037 West Lake Street, Chicago 12, Illinois.

SIEGFRIED ELECTED PRESIDENT OF SUPERIOR VALVE & FITTINGS

W. E. SEIGFRIED

Superior Valve & Fittings Company announces that at a special meeting of the Board of Directors on Februaryr 25, 1948 Willis A. Siegfried was elected to the office of President, to succeed the late John S. Forbes. . Mr. Siegfried joined the company as assistant to the Sales Manager in July, 1944 and in April of 1945 was made Sales Manager. In April of 1946 he succeeded to the office of Vice-President in charge of sales and become Vice-President and General Manager in October of 1947.

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HENRY VALVE APPOINTMENT

G. W. WHEELER

HENRY Valve Company of Chicago announce the appointment of Gordon W. Wheeler as field engineer in the Ohio territory. Headquarters will be in Dayton. Territory will include Ohio, Kentucky, West Virginia, Western Pennsylvania and Eastern Michigan.

Mr. Wheeler who was export manager for the firm, has also been active in sales of Henry products.

CLASSIFIED ADS

Rates: $2.50 for fifty words or less, 40 cents for each additional ten words or less

WANTED
CHIEF REFRIGERATION ENGINEER

Nationally known California Manufacturer of Commercial Refrigeration has opening for an experienced Chief Engineer capable of assuming the responsibility of a complete Engineering Department, including mechanical and design development. Write giving full details of qualifications and salary expected to Box MR-5, The Refrigeration Service Engineer, 433 N. Waller Ave., Chicago 44, Ill.

WANTED—Service Manager—Commercial refrigeration and air conditioning installation and service. Experience necessary on all types and sizes equipment. Frigidaire franchise. Unless you can qualify for $7,000.00 position please do not reply. Allied Refrigeration Company, 322 S. Third St., Hamilton, Ohio.

SERVICEMAN WANTED—Must be fully experienced on commercial refrigeration. Truck furnished. Pleasant working conditions. Write stating experience. Jerry's Refrigeration Co., 610 Washington St., Wausau, Wisc.

INVESTMENT OPPORTUNITY—A good proposition for an individual with some capital to assume active management of a going business that offers good future for a worker with executive ability. Present principal is well known in industry and needs services of a good man in the business. Address Box MR-4, THE REFRIGERATION SERVICE ENGINEER, 433 N. Waller Ave., Chicago 44, Ill.

FOR SALE—Good, going refrigeration service business. Overhead low, shop fully equipped and well stocked. $5500.00 includes 1938 service truck. California community large enough for expansion, good weather, schools, college, plenty of maintenance, sales available. Real opportunity for two "eager beavers"; present owner overtaxed, will lend assistance for short period. Address Box MR-2. THE REFRIGERATION SERVICE ENGINEER, 433 N. Waller Ave., Chicago 44, Ill.

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. . . and that, experienced service engineers know, is the surest way to get dust-free drying, maximum capacity, fast action, removal of acids and corrosive materials, freedom from caking and channeling — freedom from any further moisture problems. Naturally, leading service engineers demand the leading refrigerant drying agent.

Your jobber stocks Davison PA 100 Refrigeration Grade Silica Gel in factory-charged dehydrators — or in bulk in the can with the blue label.

THE DAVISON CHEMICAL CORPORATION

Progress through Chemistry

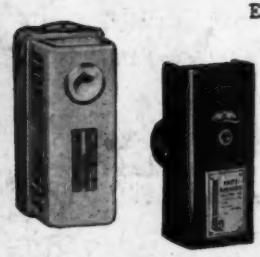
BALTIMORE-3, MD.

PIONEERS AND DEVELOPERS OF SILICA GEL

Canadian exclusive sales agents for DAVISON SILICA GEL:
CANADIAN INDUSTRIES LIMITED, Sales Division, Chemical Group

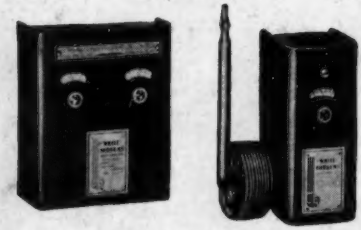
No wonder we installers like WHITE-RODGERS controls

There's no waiting to check settings... just set them and go on to the next job



Easy-to-read, visible dials, accurately calibrated in degrees Fahrenheit or pounds pressure, make installation and adjustment of White-Rodgers automatic refrigeration controls quick and easy.

When you're responsible for the operation of equipment, it's well to remember that such equipment can be only so good as the controls that make it work. That's why more and more manufacturers are standardizing on White-Rodgers refrigeration and air-conditioning controls. White-Rodgers Electric Company, St. Louis 6, Missouri.



WHITE-RODGERS

Controls FOR REFRIGERATION HEATING AND AIR CONDITIONING